CANDRA CAKRAVARTI

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SEX LIFE
IN
ANCIENT INDIA

An explanatory and comparative study based on an intense research
of tribal migrations and customs, comparative Indo-European
etymology, Tantrika sex-worship, exemplary
narratives of ancient India and other
cognate topics

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FIRMA K. L. MUKHOPADHYAY
CALCUTTA * 1963

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FIRMA K. L. MUKHOPADHYAY
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PREFACE.

MANY items of the Hindu Sexology—Kāma Sūtras—are based on empirical functional psychology. But they can be better interpreted through physiology and endocrinology. This I have attempted to do in this book. Comparative marriage customs may reveal the social behaviour of the peoples concerned. Social and sexual patterns are peculiar to many tribes. So tribal studies are needed to understand and explain them. Comparative philology may show many social and tribal intrusions. That between Chinese Taoism and Buddhistic-Hindu Tantricism, there is a close relationship, nobody will deny. But that Buddhistic-Hindu mystic sex-worship is based on Taoist magic and alchemy may be revealing to many. Though from time immemorial, in ancient Egypt Osiris and Isis, in Assyria Asshur and Ishtar, in Phoenicia Baal-Ashor or Asher (Maloch, Atis and Adonis) and Astoreth or Ashera, in Iran Mithra and Ardvisura Anahitā, in Scandinavia Freyr and Freya, in Lithuania Kaws and Milda, in Etruria Mutunus (even among the Roman matrons it was the custom to make the newly married bride to sit on the phallus=fascinum, anciently an emblem in Dionosian mysteries, for her defloration) and Mutuna, in ancient Greece Priapus (the male generative power personified as a god, son of Dionysus) and Aphrodite, in ancient Rome Subigus and Prema (whose statuette in coition was hung over the nuptial bed of the newly married couple to make their union pleasant and fruitful), in India Śiva and Śakti (Liṅga and Yoni symbols of male and female principles in nature), were worshipped as fertility gods and goddesses to promote the fertility of plants, herds and men. But the Taoists alone formulated a seductive magic formula of coitus reservatus, combined with bodily message and deep breathing, for rejuvenation and prolongation of life.

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ABBREVIATIONS

Ar=Arabic
Av=Atharvaveda
Bhāg P=Bhāgavata Purāṇam
Bd Devatā=Bṛihad Devatā
Celt=Celtic
Fr=French
Gael=Gaelic
Ger=German
Gk=Greek
Ir=Iranian
It=Italic
L=Latin
Lith=Lithuanian
Mārk P.=Mārkandeya Purāṇam
MBh=Mahā Bhāratam
NGM=National Geographic Magazine
Pers=Persian
Ram=Rāmāyaṇa
Rom=Roman
Rv=Rigveda
Russ=Russian
Sl=Slavic
Skt=Samaskṛita
Tam=Tamil
Z=Zend Avesta

Chapter I

TRIBAL MIGRATIONS IN ANCIENT INDIA

The Australoid has formed the base of the population of India, especially of its southern parts and SE Ceylon, known as Vedda=*Rv* 7.18.19 *Bheda* on the Yamunā=Vyādha of black skin (kṛishṇāmtvacam *Rv* 1.130.8) with depressed nose (anāso *Rv* 4.29.10; nāsā=*Ger* nase=*Russ* nas=*Lith* nosis=*L* nasus), the hunter, as he lives by hunting, gathering wild fruits and tubers, hiding in caves or under shelters of boughs. When Rāmacandra, his consort Sitā and his step-brother Lakshmaṇa went on their exile from Ayodhyā—the unconquerable city, they became the guests of the Australoid Nishāda chief Guhaka at Sringaverapuram on the Bhāgirathi which they crossed on his ferry boats[1].

The Hamites were mixed people of Negroes, Cro-Magnons, Mediterraneans. Hamitic Shangallas, Agaws, Gallas (among whom the cattle plays a dominant role even to-day), Watusi, Tigre, Copts (who call themselves Guptios, Kuptios=*Ar* Quft) migrating through Mesopotamia, reached Ceylon which after their name became known as Simhala; Gayālis of Gayā; Goalās (cow herds); Vatsa; Tugra; Guptas, and mixed with Moors (*L* Mauras), *Maurya Guptas.* Somali Godabars became the Godabas after whom the river Godābari has been named. Kikuyu and Aja of the Upper Nile have become the Kekayas and Ajas. Mahria and Tumeli have become the Mahars of W India and Tāmils of S India. Dombe of the Bantus has become the Domba=Doma of MP. Angas of Nigeria became the Aṅgas of S Magadha. Bangi and Banga on the U-Bang have become the Bangash in Kohat, Bhangi in MP, Baṅgāli in UP, and Banga in NE India which is called

Bānglā after their settlement Bangala (also a tribal name) between Congo and U-Bangi. Balong=Bhalonos *Rv* 7.18.5-7. Bishari of the Bejas=Besera. Zandeh of Niam-Niam became Zand in S Fars after whom the river Sindhu has been named; there is still a Sind clan amongst the Mahars. Cro-Magnon Barabra or Berber is recorded in Egyptian inscriptions of 12th century B.C. *Vedic* Saindava =*Z* Hendava=*O Pers* Hindu, dweller on the Sindhu= Indus. Sapta-Sindhavah=*Z* Hapta Hindava[2].

Indonesian Mahisas of Bāli have become the Mahisyas of Pundra, Mahisha of Mahisha-mandala (Mysore), Mahisman (Harivamsa 1.30), Mahisha (*Padma P. Uttara Ch* 75) of Mahismatī=Mahesvar=Māndhātā on the Narmadā. Mahismatī women had unrestricted sexual life.—*MBh* 2.31. Later Haihayas=Hio Hui Huns established Avanti Kingdom with Mahismatī=Mahesvar as their capital. They penetrated further south. Coorg is still dominated by them. The megalithic complex of the South, especially at Brahmagiri in Mysore, is associated with *black and red pottery and iron which* they introduced. Pun-ti of Canton area has become the Pundra=Pod of Bengal. Mundos of Pinai and Kalinga of Luzon in Philippines have become Mundas and Kāliṅgas of NE India; Sabari of Formosa has become the Savara or Sewar of MP. Madang and Kunti of Borneo have become the Mātañga and Khonds and Gonds. From Khonds, Khāndava forest has been named. Khonds and Gonds have been Sanskritized into Candāla, in the Prākrita Cāḍala and Gauḍa. Sassaks of Lombok and Manus of Admiralty Islands have become the Śaśa-vindus and Śaśakas, Manus or Mānavas of India. Manus were puritans; they pierced the ear lobes of their boys at the initiation ceremonies; they feared the spirits of their ancestors.[2A] Indonesians have introduced in E India between 900-700 B.C. stone shouldered hoes or adzes with oblong section.

The Semites are Mediterraneans, more or less mixed with the Hamites, Palæ-Alpine Ural-Altaic Sumerians and the Negroids. Semites are good looking with long head, vaulted forehead, straight or curved nose, thin lips, ellipsoid face, lean muscular figure, luxuriant beard, black eyes, and has well-developed genitalia. Man's penis is not only one of the biggest (next to that of the Negroes), but also most vigorous. Woman's mons is dome-shaped and covered with thick growths of black hair. Around 15000 B.C. as the fourth glacial period terminated when much of Europe and N Asia was covered with an ice sheet, the Sahara upto S Arabia and the Persian Gulf was moist and dotted with lakes, a well-watered wooded land, abounding with games, this region was inhabited by the Mediterraneans and Cro-Magnons. Through the ten millennia of the mesolithic age as the ice cap was retreating to Scandinavia, Sahara, Libya and Arabia became desicated, the Mediterraneans moved northward and seaward. The Mediterraneans moved to Arabia where they later became known as Shems or the Semites. Another branch moved to the Iranian plateau where many plants and animals became domesticated. In Libya and the Nile Valley, the Mediterraneans mixed with Cro-Magnons and the Negroids became known as Hamites.

Soma-vamsa.—Ural-Altaic Palæ-Alpines settled in Sumeria and developed Sumerian civilization. They were conquered by Semites—descendants of Shem=*Soma Vamsa*. Many of the tribes as Soyot (Satvata=Sūta=Sata-vāhana), Andkhui (Andhakas), Yutii (Yadus), Voguls (Bhojas), Tatars (Tittiri), Hia-Hui (Haihayas), Niu-chi (Nicchavi, Licchavi), collectively known as Ugrian (Ugra-sena; in Russian chronicles, Ugrian was called Ugra: See Finno-Ugrians in *Encyclo. Brit.*, 14*th Edition*) reached NW India. Shem has simply been pronounced as Soma. Later it has been explained as a Lunar Dynasty, perhaps because during the day time of the burning desert scorching wind, Semites usually used to live in underground caves or adobes near an oasis, and only in cool moonlight during the night time, they used to make their plundering forays. Nahusa=Noah. Yayāti=Japheth. Amara=Amurri=*Egypt* Amaru=Amorite. Asura =Asshur=Assyrian. Gādhis=*Kassite* Gandi, Gaddi=Quadi ruled Kānyakubja; at present Gaddis are found in Karnal and Kangra. Yadu=Yutii,=Idadu. Druhyus=Druse=Dorus=Durhani. Turvasa=Triboces. Kasa=Kasse, *Akad* Kassu=*Ir* Kassoi, Plu. Kassip=*Gk* Kaspoi, known as Kassites=Kāsyapas ruled Kāsi which was named after their capital Kasshi in Zagros Mts, now known as *Khas* or Khasa in Sub-Himalayas. Puru, Puru Kshatriya=Parsa Xsayatia=Purush Khatti (Hittite)=Chatti. Marutta=Kassite Marutta[3].

Manus are the Mediterraneans of long head, medium stature, ellipsoid small face, small jaw, small teeth, prominent occiput, medium heavy beard and body hair, large black eyes and wavy hair and narrow nose which is straight in profile. Hun Haihaya=Hao-Hui Śaryāta (*Rv* 1.112.17; *Matsya P.* 43)=Curiatti reigned in Kusasthali. Haritas (Horatti, opponents of Curiatti) ruled in Ayodhyā. Śaryātas befriended the Cyavanas (Sabini) whose chief married Śaryāta princess Sukanyā. Cyavanas ruled in Pañcālas and Puru territories. Suvīras (Sabine Severus: Babylonian Subir of Subarta) took possession of the neighbouring area of Dvimidhas=Diamedes. In 12th century B.C. Danaoi (Dānava) and Pelasgoi (*Egypt* Pulaseti=*Assyr* Pulastu=*Pur* Pulasta) overran Syria with their family members in bullock carts and settled there as *Danans* (*Heb Dan*) *and Philistines*. In Egyptian Cretan basreliefs Pelasgoi with plume-encircled headdress and *Keftiu* (Cretan=*Gk* Kreteus=*Pur Kratu*)[4] look Mediterranean with slender waist, tightened by waist bands. *Danus* are valiant fighters (*Aban Yast* 72-73). In the epics it is mentioned that the Bhṛigus (Bryges), especially Usanas (Ausones) Sukra, are the supporters of Danus (*Rv*

4.30), Asuras (*Rv.* 6.27.5) and Daityas (Datii=*Baby* Dutai =Datye of Amritsar). Śaryāta's kingdom was overran by Punya-jana Rākṣasa=Ruks-Asæ (In Mudrā Rākshasa, Sakatar Rākshasa was the premier of the Nanda empire). Vatsa-pri of the Vaiśyas (Bessi) of Vaisāli made an alliance with Aśva-senas (Asæ) and married their princess Madālasā (relaxed with intoxication) and with the assistance of Gālava (Galava, a British Celtic tribe), and defeating the Daityas (Datii, *Mark P.* 21), extended his territory upto the Gangā-Yamunā junction and called it Vatsa (Vamsa in Pāli; in Jaina Uvosagadas Vacca), capturing it from the Kāsyapas who had called it Kauṣambi—the nursery of Kasas. Dama (*Gk* Damon) made an alliance with the Danus—*Mark P.* 133. But he was defeated by Haihayas= Hio-Hui. One of his successors made an alliance and succeeded Budhas=Budini. Budhas were overthrown by Visālas (Basilii) who founded Vaisāli Town. His successor Tṛiṇabindu (Trinobantes) made an alliance with Pulasta of Mekala Range and gave his daughter Drāvirā to the Pulasta Chief. After Drāvirā, S India is called Drāvira Desa. Pulasta (now represented by Poligar) Chief (Rāvaṇa) married Mandodarī (slender-waisted, a trait of the Mycenaean), daughter of Māya (Maeo) Dānava, and his sister was married to Madhu (Maedi) Dānava after whose settlement Mathurā on the Yamunā and Madurā in S India were named. Agastya=Ægisthus. Aja Midhas (*Rv* 4.43.4)= Agamedes from whose settlement Ajmira has been named. Dvi-Midhas=Diomedes. Priya Medhas *Rv* X.73.11.= Priamides. Gepidæ=Gopatha to whom the Gopatha Brahmana is ascribed. Agastya brought out the welfare of both colors (*varṇa*)—Uvau varṇāv āśisho jagāma—*Rv* 1.179.6 —the white complexioned (śvityañco Tṛitsava with their braided hair—*Rv* 7.83.8 śvit, śveta=*Russ* svietite=*Lith* szweitu) and of black color (kṛishṇa varṇan: kṛishṇa=*O Pers* kirsnan=*O Slav* crunu=*Lith* kerszas) of black descent

(=kṛishṇa yoni *Rv* 2.20.7). Etrurian (Etruscan=*Heb* Iter, Ituræ) is Itara Mahidāsa to whom Aitareya Brāhmana is ascribed (*Ait Ar* 2.17). Atharva Veda was the manual of Atharvan (*Gk* aitho, flame=*L* atrium, hearth=*Z* Izad, azar=*Pahl* atash=*Skt* athari, flame=*Z* Atharvan—fire-kindler) Añgirasa (Ancharius of the Etruscans 4, 8, 6; 128-32; 7.115-118), Aruni (Aruns), Uddālaka (3.29; 6.15), Śunaka (Seneca 2.6.16; 108; 7.10-12), Marica (Marisci 7.62-63). *Et* Tinia (god of thunder)=*Rom* Jupiter=*Skt* Indra. *Et* Uni=*Rom* Juno=*Skt* Yūnī. *Et* Minrva=*Rom* Minerva (goddess of wisdom)=*Skt* Manishā. *Et* Turan=*Rom* Mars =*Gk* Ares=*Skt* Hara. *Et* Turau=*Rom* Venus=*Rv* 1.83.5 Vena, the Venus planet, the goddess of love and beauty. *Et* Mutunus=*Skt* Madana.

Sūrya Vamsa has developed out of Sauro-matæ=Sarmatæ. When the Sauromatæ Mitannian force (Mitra-arṇa=allied forces) occupied S Mediterranean coast with their thundering chariots, drawn by flying horses, it was called Sauro, Suri, Hori (Horites) and Syria after them. Main Sūrya vamsaja was Ikṣvāku=Pāli Okkaka. Achaeans (*Gk* Akaioi), conquering Troy, settled on the Syrian coast as Akhiyawa, known to the Khattis=*Egypt* Akaivash. Ikshvākus (*Rv* x. 60. 4) ruled Ayodhyā. The Ikshvāku (*Gk* Akaioi) dynasty included Asita (Ossete of the Sarmatians, *Rām* 1.70.30); Bāhu (Boii), Sāgara (Saka-ulai—Saka chief). Dilipa (Dolopes) came with Śaṇḍili (Vāyu P. 73.41. Candanules of Achaean descent ruled Lydia, but were dethroned by Gyges 680-668 B.C.). Śaṇḍilis were regarded as Vasistas (*Matsya P.* 200.5), but later became incorporated with Kāsyapas as Śāṇḍilyas. Raghu=Rugii, a Germanic tribe, originally situated on the Baltic, west of the mouth of the Vistula as mentioned by Tacitus; then found south of Carpathians and joined the Goths. Aja=Ajax. Dasaratha =Dassaretæ of Illyria=Mitannian Dusratta. Rāma, son of Dasaratha, in one of the expedition against Savaras, led

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by Indra Viśvāmitra, became the guest of Ahalyā (of Ahala gens), wife of Añgirasa (Ancharius) Gauthama (Gothones=Goths)-Saradvant (Sardones), a great archer who was the chief minister of Sīradvaja (Sauradvaja—standard bearer of Sauras—Sauromatæ), king (Janaka) of Mithilā (*Rām* 1.50.6). A Savari welcomed Rāma with presents of flowers and fruits. *Indra* Viśvāmitra seduced Ahalyā. But as Ahalyā became the hostess of the crown prince of Ayodhyā, Gautama Saradvant thought it prudent to patch up his differences with Ahalyā and Indra Viśvāmitra. Janaka Sīradvaja had a pretty adopted daughter Sitā (a princess of the Ossete, an important Sarmatian section). Gautama Saradvant and Indra Viśvāmitra brought about the matrimonial union of Rāma and Sitā, thus fostering a political and military alliance of the two branches of the Sauras. Basilii (a royal branch of the Sarmates: Keane—*Man P.* 326), driven by the Goths, occupied the territory of Vaiśyas (Bessi, a powerful Thracian people), founded Visāla or Vaisāli as their capital. Kors or Kurs and Kṛivi-chi (chi=of) of Lithuanian Kurland became dominant as Kuru-Kṛivis. Wends=Venetii=Pandion=Pāndus contested the supremacy of the Kurus and their allies. Kutzo-Vlach (*Slav* Valoch)=Vāhlikas and Koch Baloch, Baluchis. Yuechi as Yeshkun of Kashmir=Yaksha-Kushans. Zhmud Inguani=Jamad-agni. Ruks (fair-colored)-As or Asæ on the Volga=Rākshasa. Kṛivi (*Rv* 8.20.24; 8.22.12)=*Lith* Kṛivichi=*MBh* Kṛipa. *Rv* x.33.4 Kuru-śrāvaṇa (glory) Trāsdasyava. Krivichi was the biggest of all Lithuanian tribes.

Āryas.—Arii, a Kelto-Germanic tribe on the Upper Vistula, led others into India and the country was called after them Ārya-varta—the abode of the Āryas=*Z* Āirya. The most powerful of the Germans was called Arios—Tacitus, Germania 43. Ariana=*Z* Airyana. Iran and Eire were also named after them. Another wave of Keltic Brythons=*AS* Brittas=*L* Britto, Britti in inscriptions=Brutti of Lower

Italy=*Gk* Brettoi=*Fr* Breton=*Eng* Briton=*Parth* Prithu, Phrates as Bhāratas conquering the Puru Khattis (*Rv* 7.8.4), expanded over the whole peninsula, and it has been since known as Bhārata-*varṣa* where the Bhāratas are spread over like rains. Bhāratas by cross-cousin marriage with Italico-Keltic tribe Vagienni=Vajins who settled in Vaisāli as Vajjis formed Bharat-Vajineya=Bharadvājas who however superseded Bhāratas as the ruling power. Trinobantes as Tṛiṇabindus ruled Vaisāli. Magelli=*Pali* Moggali, Sanskritized as Mudgalas ruled Pañcālas. Ausones as Usinas ruled Yādava territory; and as Kavi or Sibi (Sabae) Usinaras (*Rv* x.17.7) in NWP. Ambrones=Ombrones of the Baltic Sea became Umbri=*Gk* Ambarici and as Ambarisa ruled Ayodhyā. It became later known as Ambasthas who as physicians treated the sick and the wounded with the magic talisman amber=*Fr*, *Ger* amber=*Russ* amber=*Skt* ambara, a fossilized pine resin of the Baltic region. Lithuanian Baltas of the Baltic settled in Baltistan as Baltis. Paesici=Pashai of Chitral and as Piśācas ruled Kashmir, speaking Pisāca dialect. Mattiachi=Matsyas of Birāta. Haryaśva=Āryaśva=Ariaspa. Śakunis (*Gallic* Sequani=*Ital* Sicani=Sigynnae of Thrace=Siginni of Caucasia) ruled Uttara Patha, Yādava and Videha territories. Salyes and Salluvi as Śalyas and Śalvas. Śalassi, a branch of Salluvi, settled in NWP as Śailuśas who were conquered by Bharatas. Pulasta Bibhīṣaṇa married Śailuṣī Saramā. Atreya=Atreus. Bhṛigus=Bryges.

Vasiṣtas are the Varisti of the Upper Danube. S and Z are interchangeable as *Gk* Eos=*L* Aurora=*Skt* Uṣas=*Let* Auszova. Parāsaras—Parsiræi incorporated with Vasistas are called Varista (*MBh* 1.182). Vasisthas are white-complexioned (śvityañca) and place their hair knots (dakshiṇatās kapardā) on the right, *Rv* 7.33.1. Dacis of Pantalia conquered the Gangetic doab and called it Pañcāla after their ancestral place of origin. They were called

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śvityāñco Tṛitsava=while-complexioned Tṛitsu with braided hair.—*Rv* 7.83.8. Tṛitsu=Teurisci of Dacia. Divo (divine)-Dāsa was a great ruler, and was helped by Bharadvājas. His successor Su (good)-Dāsa extended his kingdom to Ayodhyā. His descendant Saudāsa was defeated by the combined forces of the Kurus, Vasistas, Parāsaras and Somakas (Comi). Because his feet were covered with black warts, he was called Saudāsa Kalmāsapada. And as he or his ancestors came from androphagy region, he was called an androphag (nara-māmsa-bhojin). Nara=*Z* nar, nara=*Gk* aner=*L* nero=*Oscan* ner=*O Ir* nert. The Kelts introduced bronze flat axes with more or less extended blades in about 1100-1000 B.C. A bronze dagger of about 1050 B.C. has been found at Fort Munro in Sulaiman Range W of the Indus. On the Zhob (*Rv* 6.27.6 Yavyāvatī) Indra conquered Turvasas=Triboces, and gave the Zhob valley to Sṛiñjayas—Saka Sarangas=Sāngarka, *MBh* 1.22. In Baluchistan=Balaksha, a tripod jar, horsebells, rings and bangles found, recall similar objects found in cemetary B at Siak in Baluchistan. Ugrāudha Brahmadattas, known as *Ugras*, ruled from Mathurā to Mithilā, overthrowing the Tṛitsus—Teurisci—in Pañcāla and Kāsi. Æoles, Æolii (Aeolian)=*Pur* Aila. Ion (Ionian)=Iavanu in the annals of Sargon 722-705 B.C.=*Heb* Javan (Ezek 27.13; Isa 46.19) =*Skt* Yavana; Yauna in Nasik inscriptions. Molossi=*Skt* Mleccha. Later all foreigners were called Mlecchas.

Śaka (*Chin* Sek=*O Pers* Saka=*Assyr* Isgura=*Gk* Skulkhaii=Scyths)-Hūna Nāgas (*Chin* Huang-nu) were mixed semi-nomadic peoples of the Nordics, Palæ-Alpines, Alpines, Celts and Mongoloids, speaking generally satem-varieties of Indo-European speeches. Kinnara=*Gk* Kimmeroi. There is a Kinnar people in Kulu valley and on the left bank of the Sutlej on the Tibetan border. *Gṛitsa* (magician)-*Madā priyā deveshu Rv* 2.41.18=Gṛitsa Madas are the beloved of the gods. Mada *Rv* x. 144.2=Madra, Munda, Marunda=Medes. The Medes were called Mandas by Cyrus; Arii on the Arius river, Herodotus 7.62. Assyrians in Essarhardon's inscription called the Kimmerians as Mandas. Naramsin had to defend the Assyrian empire against the attacks of Umman-Manda. Mada=*Achaem* Mada, Madai. Ksharatas=Khshthrita of Kimmerian origin who ruled Media 675-653 B.C. Tura=Tauri. Śaka-mānusha=*Ir* Hakha-mani-shya=Achaemenes. Kāsyapa=*Kassite* Kassipi=*Med* Kaspia=*Gk* Kaspioi=Caspi=Caspian Scyths. Tura=Tauri. Parāsara=Parsiræi. Śakti=Sogdi=Sogdian. Sagara=Sagara-ulai=Saka Chiefs. Śaka-Pūta Narmeda, composer of *Rv* x.132.5: "This sinchaka (Śaka)-pūta (putra indicating the use of Prakrit) has committed; he has slain the friends that took refuge with him: Asmin svetac chakapūta enohite mitre nigatān hanti vīrān. Alinas *Rv* 7.18.7=Sarmatian Alani=*O Pers* Alaman=Alana of the Chinese Han period. Uraga=Urgi. Tuji=Tajikas. The river basin between the two rivers—the Oxus and the Syrdarya—was called in the Avesta Varukasha=the country of great lakes. Airyana vaejo (*Skt* bīja, meaning seed, the original home or bhāga=portion) where the Airyas=Āryas dwelt on the Daitya=Araxes=Oxus, present Chorasma. Here also dwelt the Apa (water)-Siaks (Śakas), the marshy or riverine Sakas. Sai-Sakas of Iran were conquered by Kushans. Vai Karna=Verhkana of *Farges* 1.12=Varkana of Darius Behistan inscription=Varka in Nakese Rustam inscription of Saka Haumavarka (hemp-wearing)=Vṛikas and Varkeyas in Pānini's Audha-jivi saṅgas=*Slav* Vareks=*Keltic* Varciani. Saka Tyai Paradraya=Afridi=Pārada. Dārada=Dards=*Ill* Dardanii. Sṛiñjayas=Sāñgarka *MBh* 1.22=Saka Saranga on W Indus=Zaranka of Darius=Sarangians of *Herod* 2.93; 6.67. Tigra-Khauda (pointed helmet-wearing) Saka. Kuru Nāgas *MBh* 14.57=*Lithuanian* Kurs of Kurland; Kuru-Kambojas *MBh* 6.45=*Z* Kambojias=Kambucene. Āryaka=Arsaces.

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Kirātas=Scythic Keraits of Mongolia. Jāts=Getæ. Airavata Jaratkarṇa Sarpa *Rv* X.76=polyandrous Sherpas of NE Nepal in Kumbu valley. Sesa=Sses=Sushinaks of Ansaṃ=Hsia dynasty of China 2640 B.C.=Śiśunāgs of Magadha. Vāsuki=Tus avesaki *Yast* 5.53=Uzbegs. Karkota=Karkitans. Takshaka=Tekke, Tahia. Tukhara, Thākura=Tochari. Gedoz (Gaḍura) of Gedrosia=Baluchistan opposed violently the encroachment of the Scythians, known as Nāgas. Aśvaka=Aśva-Sena=Asvakan=Afghan. Aśva =Asiioi. Pākthas=Paktum=Pictones. Durhyu=Durhani =Druse=Dorus (Dorian). Maga, Mṛiga=*Z* Magai, *Yas* 46.14=Magus in Achaemenian inscription=*Ir* Margu =*Gk* Magoi=Machas. Maga=Magadha, *Viṣṇu P.* 2.4.69. Kalki=Kalka. Vetālas=Abtelites=Ephthalites=White Huns. Śakas included Śākyas of Kapilāvastu of whom Gotama Buddha, known as Śākya Simha (Saka lion) was the prophet of Buddhism. Tittiri=Tartars. Malla Nāga= Nogai Tatars; Nogai as Nagara of Gujarat, Newar of Nepal and Nayar of Kerala. Vākātakas=Votiak. Bhava Nāgas belonged to Bharasivas. Bharasivas and Nava Nāgas belonged to Sesa Nāgas. Yaksha Kushans=Yuechih Koueishouang. Kudara=Kidars. Śudra (*Pali* sudda, *Fem* Suddi) =Chudes=Chous of China. Ābhira=Avars. Lichhavi= Nichhivi=Niu-chi=the Golden Tatars. Jāts=Getae. Gurjara=Khazar. Bhutas=Bhotia. *Rv* 1.133.5. Piśācim= Piśācas who ruled in Kashmere as Piśāca dynasty=Pashai on the Chitral=Paesici. Piśāca speech includes Shina, Kashmiri, Kafir, Gilgiti, Chitasi, Khowwari, Bashguli, Brokpa, Ashkun, Astaze, Kohostani, Wai-eka. Hūnas included Solankis=Chālukyas of Gujarat, Bādaimi, and Kalyāni; Hoysolas and Ballals of Dvarāsamudra; Ballāla Sena Baidyas of Bengal, Haihaya Kālachuris of Chedi (Karṇas); Gaṅgas of Kolar and Ganjam, Yādavas of Devagiri and Vijaya Nagara; Yādava Varmans of Vikramapura; Chandellas=Candra Atreyas of Jejakabhukti;

Pushyamitra and Pushya-bhutis; Guhilots=Guhas of Mewar, a branch of Mitrakas of Valabhi; Gahadvals and Candras. According to Chand Rasam, Pawars=Paramaras, Parihars=Gurjara Pratiharas of Khazar descent, Chauhan =Chahumanas and Salanki=Chalukyas were called *Agni kulas*. Kutsa=Kuci. Tocharian=Tukhara=Thākura. Śaka. Hūnas were called Yen-ki=U-ngo=Agnis of Kuch, Khotand Fusion of races engenders dynamic physical, nervous and mental energy, inheriting different genes. Kuśika=Kosik; Haihayas=Hio-Hui; Tālajaṅgā=To-liong-ki; Vetālas= Ab-tel-ites; Avanti=Ho-hunto; Ajantā=O-jen-ta; Ujjaini= Hu-jen; Sālanki=Ho-lanki were regarded as Huns. Dāsa= Dahe=Daci of Dacia. Suṅga=Sung.

Śaka Nāgas introduced in Ghāgar basin, Upper Gaṅgā, Hastināpura, Indraprastha, Ahichchatra copper harpoon heads, spear heads, swords with painted grey ware—wheel turned bowls and dishes with black simple bands round the rim, both inside and outside—between eighth and seventh century B.C. The copper contains a small amount of nickel and arsenic of Indian origin. Possibly the Śūdra (Chudes= Chous) Nandas introduced a highly polished Northern Black Ware, jet black or still blue in colour at Kausambi, Hastināpura with iron, round or square coins between sixth and fifth centuries B.C. Maurya Guptas, particularly Asoka after defeating the Kāliṅgas about 264 B.C. built up Sisupālgarh, Tāmralipta, Mahāsthāna and Maināmati (near Comilla).

Mengoloids.—Kipchak=The Golden Horde=Hiraṇya Kāsipu. Tartar=Tatar=Tittiri to whom Taittiriya Samhitā =Black Yajurveda—Shamnistic magics—is ascribed; Khalimak=Kalmuks=Kālamukha; Khalka=Kalki; Tunges =Tuṅga; Niu-chi=Licchavi; Keraits=Kirātas; Mongol =Moghal (rather mixed with Turko-Iranians); Hazara =Hazarā. Mongol ancestry, besides the head form, nose, oblique eyes, flattened cheek bones, shows itself by an irregular shaped blue patch, located at the base of spine, bluish to purple in color, but fading to a slaty shade as it gradually disappears; it is present at birth in both sexes, but disappears in most cases before the tenth year is reached. The Khāsi near Shillong is of Mon-Khmer stock, possibly the Khas of Laos. The Khāsi, Gāros, Manipuris and Kukis are plattyrine dolichocephals, mixed more or less with Australoids and Negritos. Ahoms are the Thai-speaking Shans. In Ahom, Ao Naga, Magh, Chakma, Tipra, brachyceplalic Palæ-Alpine factors prevail. Kaccharis called the hill folks Nanggra (warriors) which in Assamese became Naggra; Naggra in English form became Nagā.

After the Śūdra Nanda dynasty was wiped out by the Maurya Guptas and many Śūdras were enslaved, Śūdra became synonymous with slaves (dāsa). Brahmins would be addressed by Śūdras as thou (*bho*) and Brahmins would address the Śūdras as Āryas (lords).—*MBh* 3.159.39.

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1. *The Australoid* skull is long and narrow with low or retreating forehead, which is sometimes keel-shaped on the top. The skull bone is very thick. Eye brow ridges are often heavy. The head hair from almost straight to curly, but coarse and black. The pilous system is well-developed. The eyes are deep set and black. The nose is frequently broad with depressed root and wide at the nostrils (anāso, *Rv* 5.29.10). The jaws are sometimes prognathous or projecting in the region of the mouth which is wide. The skin is dark chocolate in color (kṛishṇam varṇam *Rv* I. 73.7). Buttocks are slight. The limbs are usually slender. The breasts are pear-shaped. The genitals are posteriorly situated. The Australoids are of medium height. The Australoids might have originated in the Java region, whence they migrated to the adjacent islands and particularly to Australia, and to India and Ceylon and farther west. When the Murrayan Australoids had settled all over Australia and Tasmania, waves of Negroids swept over Australia via Cape York and Oceania and formed a mixed population (Carpentarian). The Negroid factors are dominant in N Australia, Queensland and New South Wales where the tribes are taller in height, darker in complexion, limbs are longer, jaws are more prognathous and hair is more wavy to curly than in W Australia, S Australia and Victoria where the dominance of Proto-Australoid (Murraryan) factors prevail. But amongst the Melanesians, where the mixtures are almost of the same pattern, Negroid characteristics are more dominant in tall stature, black complexion, almost frizzly hair as found in New Britain, New Ireland, New Hebrides, Fiji. Mesocephalic Negrito is also found in many of these islands with short

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stature, short legs, very dark skin colour, pepper corn arrangement of spiral hair on the head and prominent buttocks. Kadir, Kanikar, Kurumba, Palliyan, Paniyan who are short black-skinned with strong curly or frizzly hair and dominantly dolichocephalic with broad noses and often thick lips belong to the second category of the negroid Australoid; while the Vedda with almost straight hair belongs to the primary type of the Australoid. Australoid women have dolichocephalic oval pelvis with a short transverse and relatively long conjugate diameter. The vulva is posteriorly situated in the rear, nearer to the anus. Monspubis is undeveloped. The vagina is short and chocolate-coloured. Hymen is tough. Hymen perhaps was developed so that girls could playfully enjoy some ticklish sensation in contact with half-erect penis of young boys and the old, at the same time preventing impregnation by them. Austric priests deflore the young girls of the same age group of the clan by inserting an oiled finger into their vagina, thus tearing out their hymen, so that after marriage they do not suffer the pain and discomforts by the rupture of their tough hymen (syūman) at the first connubial embrace. Penis and clitoris are covered with long and narrow foreskin. So circumcision is a religio-social initiative ceremony for the pubescents. Penis is of medium size and lacks strong erection. Smara Dipikā (6B) has ascribed her as *Hastini* with relaxed vulvo-vagina and of poor sexual urge and orgasm, possibly because her genitalia has the color of dark brownish elephant and her rutting odors are similar. The penis of the Negroids is very big, but lacks powerful erection and has a long foreskin, provoking phimosis (*parivartikā*) to remove which and to promote fertility (with long narrow prepuce, the semen may come in dribbles instead of powerful jets streaming into cervix with open glanspenis), circumcision was early adopted in ancient Egypt. There is also hypergrowth of clitoris which is usually covered by adherent prepuce. If due to the accumulation of irritant smegma within its narrow preputial covering, there is inflammatory pain, as the narrow prepuce cannot be withdrawn for the removal of the smegma, clitorectomy is necessiated to prevent dyspareunia (vipluta, paripluta). So in early girlhood before the smegma can accumulate, the tip of the clitoris (bhagāñkura), that is the upper part of the adherent prepuce, stretched out by a needle thread, is cut off with a sharp rajor, so that the prepuce can be withdrawn to remove any irritating smegma, which is called female circumcision, prevalent in all Negroid tribes. Mesatipellic pithecoid (anthropoid) round pelvis with conjugate transverse diameters, approximately equal, occurs amongst the Negresses. They have been called *Vṛishas*, possibly after Bishari of the Beja who formed the Beshera tribe in India, or they posess bull-like neck, and *Sañkhini*, possibly because her vulva resembles the dark-grey color of the moluscan mouth or the large size of *Sañkha*—conch which is regarded as a vulva symbol in many countries; in French, conque means a woman with a large vulva; it has been observed that even in quadroons dark pigments persist alone in the vagina and bluish rings at the roots of their finger nails. Their libido and orgasm are moderate. Their rutting secretions smell like the musc of crocodiles.

The Santal like the Oraon has sub-brachycephalic head, platyrrhine nose and dark complexion. But his head hair is straight and has no Negrito spirals. His sub-brachy-cephalic head is not due to the mixture with the Negrito but with the Palae-alpines of Ural-Altaic origin such as Soyot=Sūta, Sata-vāhanas, Votiyak=Vākātakas, and whose FU-speech is also found among his peoples. In Dravidian speech, also, Finno-Ugrian, Elamite and Nubean elements have been found. Banaro of New Guinea, Banar of Annam, Bandarwas of the Oraons and Banaras of the Rāmāyana are the Oceanic Negritos, the Barrineans, mixed with the Proto-Austrialoid with curly hair, like the Onge=Gana of Andamans. "They are the Nishādas who are as black as crows, very low in stature with short arms, high cheek-bones and snub-nose".—*Bhāgavat* P. 4.14.44. Nishāda of *Vājnansaneyi Samhitā* 26-27 is explained by Mahidhara as Bhil or Bhilla=bow man of the Aravellis, or named after the Hamitic Beli of the Bejas.

Australoid Veddas have introduced in S India wooden boomerang as a missle weapon for hunting purposes. Negroid Copts=Guptios polished pointed butt stone axes. Berbers have introduced microliths which are concentrated in SW and C India.

2. Among the Hamites, though the cranial characters are variable, they are generally speaking convergent. The face apart from the Negro admixture is never prognathous. The nose is usually straight. The lips are thick, but never everted as in the Negro. The hair is wavy, but seldom spiralled. The colour of the skin varies from yellowish coppery red-brown through every grade of cafe-au-lait and black according to the amount of miscegenation that has taken place. The Eastern Hamites comprise the ancient and modern Egyptians, particularly the Copts and Fellahins, the Beja, Barbara or Nubian, the Galla, the Somali=Śyāmala, Danakil, and mixed with Semites and Negroes, most Ethiopeans—ancient Cushites. The Northern Hamites or Cro-Magnons include the Berbers of Cyranaica, Tripolitania, Tunisia and Algeria, often called Libians, the Berbers of Morocco, Tuareg and Tibu of the Sahara, the Fula of Nigeria and extinct Guanche of the Canary Island. C. G. Seligman: *Races of Africa.*

The Egyptian moon god *Chons*=*Skt* Candra. *Egypt Ka*, the body's immaterial double that hovers over the dead body in the funeral chamber=*Rv* x 121.1 Ka; Ka as Prajāpati (AB 3.22). *Egypt Atumu*, imperishable and eternal, one yet in every being=*Skt* Ātman, the soul. *Amon* or *Amen*, the solar deity of Thebes, after whom the Christian Churches still say *amen* after prayers, meaning *Be it so*; or *Am* or *Om*, representing the soul of Heh-eternity and immortality=*Om* (*tateti*, Be it so, *Chan Up* 1. 18). The cat goddess *U-Basti* of Bu-basti=*Skt* Shashthī. *Copt* Sousennos, Sisinnios, a leather phallic amulet to avert evil eyes=Chiśnadevān *Rv* x, 99.3, destroyed by Indra=*Kassite* Indas=*Hit* In-da-ra=*Mit* Indara.

2A. M. Mead: Male and Female P. 176.

3. Lothal (which in Gujarati means *mound of the dead*), situated on the Savarmati, 50 miles SW of Ahmedabad, was a well-built port town of Harappan Culture of 600 B.C. Lothal has wide roads, cutting each other at right angles. Houses and shops were built on both sides of the roads. Burnt brick-built houses had paved bath rooms with an excellent system of underground drainage to carry sullage water from baths and streets. Periodical clearances of manholes, soakage jars, cesspools and drains existed. Ships plied between Lothal to ancient Egypt and Babylonia. For at Lothal, a terracotta model of mummy and black and red ware like black-topped ware of Egypt, also a terra-cotta figure with a square beard, sharp nose and sunken eyes like an Assyrian, have been found. In 3 cases, 2 bodies of a man and a woman have been found in each grave, like that of the Egyptians and Scythians; when the husband died the favourite wife was killed to accompany her departed husband for his comforts and enjoyment. In *Rv* 6.22.4 Indra is called Asuraghna—killer of

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Asuras=Ashiret=Asshur=Assyrians. At Hariupia (Harappa), Indra smote the vanguard of Vrichivan (Asuras).—*Rv*. 6.27.5. At Harappa in area G, a lightly packed mass of human skuls (20 completely separated from the body) with a small number of human bones, has been found. In *Rv* 2.1.6. Rudra is called Asura(tvam Rudro Asuro maho divas). Indra for Divodāsa destroyed a hundred-walled town (śatam aśmanmaīnām pūrām).—*Rv* 4.30.20. The Mohenjodaro walled rampart was stormed. And a general massacre took place. It is represented by groups of skeletons—men, women and children —some bearing axe or sword cuts which have been found lying on the topmost level in the sprawled or contorted positions in which they fell. Sumerian Enlil (lord of the wind)=*Anila* (*Gael* Anal)=Wind god. Adad (god of the sky)=Aditi (goddess of the sky=unlimited space). A terracotta bull with perforated mouth, fan-shaped hump and traces of dewlap, typically Harappan, has been found at the archeological site of Harinārayanpura in the the ancient Gangetic estuary, 24 Parganas, Bengal.

3A. Parthian(=Pārthava=*Z* Parthyæi=*Ir* Parthava), Maues=Moga, Azes=Aja; Sūlikas (Seteucids); Ta-yue-chi Ki-to-lo=Little Yue-chi Kushan Kidaras; Āgreya (Ugra), Kuminda, Arjunāyayna, Yaudheya, Sivi, Mālava, Trigarta (Tyri Getae), Audambara (Udmert) were minor Śaka tribes that ruled NE India in early centuries.

4. Eleuthia (Eileithyia=*Lalitā*), the patron deity of child-birth and Ma-na-sa are Mycenaean goddesses.—Michael Jameson: Mycenaean Religion in Archeology, Vol. 13, No. 1, 1960. Rhea=Ṛhī; Kratu=Kreteus (Cretan). Adrastia=*Skt* Adṛishta is the older name of Nemesis=Niyati, the goddess of destiny. It is likely therefore that the Minoan great snake goddess was called Ma-na-sa, and the sanke goddess Manasā of the Hindu-Buddhistic pantheon is of Cretan origin. "The central figure of the shrine was the snake goddess with the triple group of spotted snakes twined about her. Her figure as reconstituted is 13.2 cm (13½)") in height, she wears a high tiara of purplish brown colour with a white border, a necklace and a dress consisting of a richly embroidered bodice with a laced corsage and a skrit with a kind of double apron. Her breasts, almost entirely bare, are of matronly proportions. The round color of the whole, including the flesh tint, is generally milky white. About the goddess are coiled three snakes with greenish bodies, spotted with purple brown. The head of one of these she holds in her right hand, its body follows the arm upwards, then descends behind the shoulders and asends again to the left arm which held the tail. Round the hips of the goddess, below the waist and forming her girdle two other snakes are interlaced. One of these whose head appears in the centre of this serpentine girdle is continued in a festoon down the front of the apron and then ascending along the edge of the bodice to the neck, coils its tail round the goddess's right ear. Finally a third snake whose tail-ends form part of the plait work about the hips runs along the left fringe of the bodice over the left ear and coils up round the tiara from the summit of which its head (here restored) originally projected". Arthur Evans: The Palace of Minos, Vol. I, P. 500-501.

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Chapter II

COMPARATIVE INDO-EUROPEAN ETYMOLOGY

Yāska was perhaps the earliest noted etymologist. Yāska wrote his Nirukta (commentary on the difficult vedic words, contained in the lists, called *Nighantus*=glossaries in which words are selected according to their meanings and synonyms). Yāska is not the first etymologist. He cites many of his predecessors. Yāska in his Nirukta 1.16 answers the objections of Kautsa that vedic *mantras* are meaningless (anarthaka hi mantrah) by pointing out that the vedas have meaning, because their words are identical with the spoken speech (arthavantah sabda sāmānyat: samāna eva sabdo loke mantreshuca=identical are the words of both spoken tongue and the vedas; similar words occur in both). That vedas were originally composed in Prākrit spoken dialetcs and later revised and Sanskritized is indicated by *Rv* x, 71.2:"As food grains are refined through a sieve, the learned after deliberations have developed this language so that the associates may communicate with each other in assemblies with this enriched ennobled speech (saktumiva titaunā punanto yatra dhīrā manasā vācam ākrata atra sakhaya sakhyāni jānate bhadraishām lakshmīr nihitādhi vāci". *Rv* x. 71.2). Yāska in his Nirukta 4.3, 6.30, 6.43 cites Gālava (Bābhravya, a minister of Brahmadatta of S Pañcāla; the author of Sikshā and Kramapatha of Rik-samhitā whom also Śaunaka's Bṛihaddevatā (1.24) calls etymologist (nairuktah) along with Madhuka and Śvetaketu. Yāska in his Nirukta 6.28; 4.25 criticizes Devamitra Śākalya. Śākalya's edition of the Riksamhitā is the existing Rigveda. Śākalya in a debate with Brāhmavāha Yājñavalkya in the court of Janaka Ugrasena of Videha forfeited his life. Yāska in his Nirukta (3.13; 4.15) mentions in 20 places Śākapūṇi (Rathitara Śakapūrṇa=the fulfilment of Śakas, a contemporary of Śākalya, the compiler of Rigveda Samhitā and a Nirukta. Yāska in his Nirukta 1.3, 1.12, 1.13 mentions Śākatāyana, a great grammarian and an etymologist. Yāska also mentions Audambarāyana 1.1, Aupamanyava 5.7, Aurnavabha 5.7, Kathakya 8.5, Carmasiras 3.15, Taitiki 4.3, SatabhaksaMaudgalya 116, Gargya 1.12 (Bṛihaddevatā 1.26 Yāska-Gārgya-Rathitara together). It seems the present version of Yāska's Nirukta is abrieved as many of Yāska's quotations in Bṛihaddevatā are not found there completely.

Yāska in his Nirukta states that all words can be traced to their primordial elements which he calls roots. So not a word should be underived (na tveva na nirvūyat).—*Nirukta* 2.1. As Yāska's *nirukta* (meaning) is based on supposed roots which are but fictions of grammarians, Yāska explains *Kāmboja* in his Nirukta 2.1 as kambala bhoja kamaniya bhojabā=that one who uses blankets or eats pleasant foods; Devara as dvitīya vara = second husband; while *devara*=*L* devir, levir=*OSlav* devari=*Lith* deweris=*Gk* daer=husband's brother. Yāska's Nirukta contains only a limited number of vedic words and their derivatives. Yāska's Nighantu contains five chapters. The first three of them are Naighantuka Kānda, dealing with synonyms. The fourth Naigana Kānda deals with homonyms. The fifth Daivati Kānda deals with vedic deities.

Pāṇini who lived after Yāska about 400 B.C. mentions in his Astādhyāyī 2.4.63 *Yāskadibho gotre,* and discussed in his *Ashtādhyāyī* phonetics with a minute description of each sound and its formation, precise accounts of the changes of sound in the inflection and formation of words, the role of sounds in isolated words and the euphonic changes in the sound of compound words (*sandhi*). Each word was analyzed into its elements—roots, affixes to form stems and inflec-

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tional ends. Sound variations and consequent changes come through varying modes of pronunciation in speech, intonations, accents and stresses on words. Singulars in perfect tenses in Sanskrit were stressed on the root, but plurals on the ending.

Indo-European is a derivative of an initially mixed language whose principal elements were Uralic (A) and some undesignated elements, possibly Eastern Mediterranean (B). Somewhere in the plains of S Russia, the blending of the languages took place which resulted in the development of the Indo-European speech. It split into two groups, designated by the treatment of the palatial explosives of group. Among one branch, called *Satem*, this was changed into spirants (s); the other *Centum* preserved the original form of the sound into or Finno-Ugric element. Centum speech includes Keltic, Germanic, Italic and Hellenic. Satem includes Slavic, Baltic, Lithuanian, Armenian, Iranian, Indic, and probably Thracian in the sense of a contributing factor in modern Albanian. Others such as Ligurian, Illyrian, Khātti, and Tocharian B (all centum) have long been extinct. By etymological investigations, ethnic, cultural or trade associations in relation to the words can be easily traced.

Indo-Iranian.—S of Skt is found transformed into *h* in Zend: asura=ahura; soma=hæmo; sapta=hapta; māsa=maha; sena=hena; asmi=ahmi; santi=hanti; asu=ahu; Vivasvata=Vivahata. Skt *h* becomes j in Zend: hṛidaya=jardaya; hasta=jasta; varāha=varaja; hota=jota; ahuti=ajuti; hima=jima; vāhu=vaju; ahi=aji; medha=mejda. *Śva* becomes *spa*: viśva=vispa; aśva=aspa; śvan=span; kṛisāva=krisāspa. Ta becomes tha; mitra mithra; Trita =Tritha; Traitoma=Thraitoma; mantra=manthra. *Sva* becomes *keu*: śvaśura=keusura; svapna=kofna; svāpa= kāva. Many words are unaltered as pitara, mātara, bhrātara, duhitara, pasu, ukshana, sthura, makshi, sarada, vāta, abhra, yava, vaidya, ṛitvija, namasthe, manasa, Vāyu, Indra, gāthā.

Indo-Iranian and Slavic.—*Skt* svanta (holy)=*Z* spenta=*Lith* sventos=*OSl* sventu. Giri (hill)=*Z* gairi=*OSl* gora=*Lith* giria (forest). Vispati (Chief)=*Z* vispaiti=*Lith* viespats (lord). Purandhri=*Z* Pārendi, goddess of riches and plenty, *Yast* 8.98. Asthi (bone)=*Z* asti=*Alb* aste=*Hitt* hastai=*L* os. Aham (I)=*Z* azem=*OPers* adam=*Gk* ego=*L* ego=*Lith* as. Gadā (club)=*Z* gadā=*Osset* gada. Griva(neck)=*Z* griva=*Lett* griva=*OSl* griva. Nāma (name)=*Z* nama=*Sogd* nim=*L* nomen=*Gk* onama=*Toch* nom=*Hitt* laman. Dakshinā (dexterity)=*Z* dasend=*Lith* desinos=*OSl* desna. Udara (belly)=*Z* udara=*Gk* oderoz=*Lith* vederos=*L* uterus. Kumbha (jar)=*Z* humbo=*Ar* khumbos=*Toch* kumpa=*Gk* chumboz. Aśma (stone)=*Z* asman=*OPers* asman (heaven)=*Gk* achon=*Lith* akumuo. Karṇa (ear)=*Z* karno=*Lith* kalnas. Bīja (seed)=*Z* miz=*Lith* miezys. Alasa=*Lith* alsa (tired). Añgāra=*Lith* anglis=*OSl* ogli. Varuṇa=*Z* Varan=*Arm* Vran=*Gk* Uranos=*Khatti* Uru-w-na=*Mit* Uruvna. Svapna (dream)=*Z* kofna=*Lith* sapnas=*OSl* sweban=*L* somnus=*Gk* upnos=*Toch* sapnant. Mitra=*Z* Mithra=*Khatti* Mi-it-ra=*Mit* Mitira. Nasatya=*Z* Naonhaithya=*Mit* Na-sa-ttianna=*Khatti* Na-sa-at-ti-ia.

Indo-Iranian.—Atra (here)=*Z* athra. Adha (now)=*Z* adha. Kshatra (power)=*Z* Khsathra. As (to seat)=*Z* ah. Ishu (arrow)=*Z* isu. Jiv (to live)=*Z* jiv. Vīra (hero)=*Z* vira. Una (less)=*Z* unda. Dura=(far away)=*Z* dura. Sura (strong)=*Z* sura. Ushtra (camel)=*Z* ustra. Duhitar (daughter)=*Z* dughdhor. Ayas=*Z* ayat=*L* aes=*Fr* airain =*OHG* aruz=*Goth* aiz=*Ger* erz=ore. Yoshā (courtesan)=*Z* jāhi goes to *Saman* for gains, *Rv* 4.58.8; 6.75.4; x.168.2. Mana=(mind)=*Z* mono=*Gk* menos. Yajña=*Z* yasna. Rishi (saint)=*Z* esho. Vāta (wind god)=*Z* Vāta=*Goth* Wods=*OHG* Wodan. Viśva (universal)=*Z* vispa. Navam (nine)=*Z* navam. Khara (ass)=*Z* khara. Sakhī (female

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friend) = *Z* hakhi. Kanyā (young girl) = *Z* kanya = *Gk* kainos = *Russ* kuna, kunka in the sense of andolescent maiden. Vighna (obstacle) = *Z* voigna. Go (cow) = *Z* gaus. Yūṣa (juice) = *Z* zus. Jya = *Z* jya. Atithi (guest) = *Z* astis, atati. Ojas (force) = *Z* aognh. Mithuna (union) = *Z* mithwan. Ratha (chariot) = *Z* ratha = *L* rota = *Lith* ratas. Medhā (wisdom) = *Z* maedha. Budh (reason) = baodhanh. Nara (man) = *Z* nar = *Gk* aner = *L* nero = *Oscan* ner = *OIr* nert. Vana (forest) = *Z* vana. Soma (hemp) = haemo. Pitar (father) = *Z* pitar = *Gk* pater = *L* pater = *Ger* vater. Patha (path) = *Z* pathan = *Gk* patos = *Ger* pfad. Bāhu (arms) = *Z* basu. Bandha = (bond) = *Z* bamda = *Ger* band. Vasista (best) = *Z* Vahista. Barhi = *Z* Beresman, the grass. Rocana (radiation) = *Z* raocana. Nābhi (navel) = *Z* nabi = *Ger* nabel = *Fr* nombril. Mās (moon) = *Z* monh = *Goth* mena = *Ger* mond = *Gk* mene = *Lith* menu. *Skt* apa-vṛinati, to open; api-vṛinoti, to enclose. *Z* vrinvati, verenvati, to hide, to enclose. *Lith* at-verti, to open; uz-verti, to close. *L* aperis, to open, to let open; operio, to cover. *Sl* za-vreti, to close, ot-vority, to open. Vṛitra = *Z* Verethro who encloses as an enemy (the water), that is the glacier whose water is released by the monsoon thunderings (vajra) of Indra. Amhsah Manyh (*Av* 11.8.1) = *Z* Angra Mainyu (amahsah = *Z* angra = *L* angor = *Gk* agas = angry passion). *Rv* x. 83.1 manyu = *Z* mainyu = *Gk* menos (fury). Napat, *Pkt* nattu, *Beng* nāthi (grandson) = *Lith* *nepotis* = *L* nepot = *It* nipote = nephew, having the old meaning of grandson. Manas (mind) = *L* mens = *Gk* menos = *Ger* meinen. Varena (enclosure) = *Z* varena = *Ir* feran. Vṛiti (hedge) = *Z* varatis = *OIr* fert (tomb). Pura = *Gk* para = *L* prāe = *Ger* vor = *Celt* pare. Drapsa (banner) = *Fr* drapeau. Nava = *L* nous = *Ger* new = *Gk* neos = *Lith* naujas = *Russ* novuii. Durva (Cynodon dactylon) = *Lith* dirva = *L* dravca = *Gk* daratai. Dam = *L* dom-us = *Fr* domicile; dampati = *Gk* despotes for dompotes, master of the domicile, both husband and the wife.

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Dāna (donation)=*L* donum=*Gk* doron. Gharma=*Z* garma=*Khot* grama=*L* formus=*Phry* germo=*Gk* thermos=*Alb* jerm=*OPrus* gorme=*Ger* warm. Amiva (pain)=*Z* amayava=*Gk* amin. Gṛiha (dwelling)=*Z* geredha (cave).

Indo-European.—*Skt* navoḍā (newly married bride)=*Gk* neas=*Lith* naujas=*Russ* novuii=*L* nuus=*It* nuora. *Śvaśura* (husband's father)=*Z* keusura=*Goth* svahra=*Lith* szeszuras =*L* socer=*Anglo-Sax* sweor. Lubh, lubhati, lobha=*L* lubet, libet, libido=*Russ* liobov=*OHG* liupa=*Ger* liebe=love. Snushā (son's wife)=*Bul* snuha=*Russ* snoka=*L* nurus=*Gk* neas=*Ger* schnuor=*Anglo-Sax* snoz. Jāmātṛ (daughter's husband)=*Z* zamatar=*OGk* gambros=*L* gener=*Fr* gendre. Devara (husband's brother)=*Lett* dieveris=*Lith* dieveris (wife's sister's husband)=*OSl* deveru=*Bul* dever=*Russ* dever (sister's husband)=*OGk* daer=*L* levir. Yaj=*Z* yaz=*Gk* ag (to worship). Śraddhā=*L* credo=*O Ir* cretim=creed. Dhānya (corn grain; *Mar*, *Beng* dhāna is rice)=*Lith* duona =*Lett* duona=*Pahl* dan. Dhānaka (gold coin and weight)= *Pers* danah=*O Pers* danaka=*Elamite* danaka=*Gk* danake as a measure and coin. Yuvan, yuvaka=*Z* yavan=*Lith* jaunas=*L* juvenis, juventus=*Fr* jouvenceau. Ostha (lip) =*OSl* usta=*O Prus* austin (mouth). Manu, Mānusha=*Z* manishya=*Ger* mann, mensch=*OHG* mannisco. Dadhi= (curds)=*O Prus* dadru. Śyāmala, śyāma (dark-coloured)= *Lith* semas (grey). Śvit, śveta (white)=*Lith* svitete=*OSl* svietite=*Ger* weiss. Pati (husband)=*Z* paiti=*Lith* patis, pats=*O Gk* posis. Patnī (wife)=*OGk* potnia. Jāni (wife)= *O Prus* genna, genno=*OSl* zena=*Bul* zhena=*Pol* zona= *Russ* shena=*OGk* gyne=*Pers* zananā. Pitṛ=*OGk* pater=*L* pater=*Ger* vater=*Goth* fadar=*Pers* pidar=*Fr* pere. Tāta (father)=*Lett* teta=*Lith* tetis, tetis, tete=*L* tate=*OGk* tetta. Matr, mātā, nanā, ambā=in *Prakrit* ammā=*N Pers* mama, māmi=*L* mater, mamma=*OGk* mater, maia, mamme, ammas, ammia=*Lett* mama=*Lith* mote, mama= *Ger* mutter=*Russ* mama. Sunu, putra (son)=*Lith* sunnus=

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OSl synus=*Rus* sin=*OGk* huinus=*Z* hunu, puthra=*OHG* sunu=*Goth* sunus=*Ger* sohn. Duhitr=*Z* dughdhar =*Lith* dukte=*Bul* dastero=*OGk* thugater=*Ger* tochter from *Skt* duha, to milk, milker. Bhrātṛ, bhrātā=*Z* bratar=*OGk* phrater=*L* frater=*Gael* brathair=*Celt* brathir=*O Prus* brote=*Russ* brot=*SI* bratru=*N Pers* brodar. Smara, Māra=*L* Amor=*Fr* amour.

Kup, to swell by excitement; kopayati, to swell by rage; kopita, enraged with passion; kopita liṅgam, excited erect penis=*L* cupio, to be excited; cupere, to desire; nom. cupido, desire, passion; Cupid, god of love. Māra, Smara =*Pāli* Māra=*L* Amor=*Fr* amour. Māra, *Pāli* Māra, a demon of destruction=*L* mors=*Lith* māras. Sūrya, svar (shining, bright)=*Z* hvare=*L* sol=*Gk* helios=*Lith* saule=*Fr* soleil. Jñānam=*Gk* gnosis=*L* gnotus,=*Russ* znate=*Toch* knān. Polita (grey)=*Gk* pelios (dark grey)=*Lith* pilkas. Pāpa (sin)=*L* patior (evil passion)=*Gk* pema (sinful evil). Dāru (wood)=*Z* dairu=*Gk* drus (oak)=*Goth* triu=tree. Sūpa=*OHG* suf=*Ger* suppe=soup. Sūkarī=*Z* hu=*Gk* us=*L* sus=*OHG* su=*Ger* sau=sow.

Indo-Finno-Ugrian.—*Skt* Vajra=*Z* vazra (club)=*Fin* vasara (hammer)=*Lapp* vacer=*Mord* vizr. Astra (weapon), ārā (awl)=*Z* astra (whip)=*Fin* ara=*Mord* uro=*Hung* ar (awl), astor (whip)=*Vog* oster. Hiraṇya (gold)=*Z* zaranya =*Voty* zarmy=*Mord* sirne=*Vog* suren=*Hung* arny. *Rv* 1.116.7 surā=*Z* hura=*Vog* sor=*Voty* sur=*Ost* sar=*Hung* sor (beer). Argada, argala (bar, bolt)=*Sora* karhar (wooden bar or bolt of a door). *Beng* gondogol=*Sora* gondogol (tumult, uproar). Kalaha=*Tam* kalakam (quarrel). Pangu (lame)=*Pkt* vaṅga (mutilated)=*Skt* vaṅku (going crookedly)=*Beng* bheṅgura (crippled). Gadā, la-guḍa=(club)=*Santal* gudna, ga-da. Lampata (licentious)=*Santal* lampot, lamot (playful; lascivious). Kabari (a braid of hair)=*Nep* barbari (long uncombed hair)=*Munda* bor=*Mārāthi* ba-bar (dishevelled hair). Indura, undura (mouse)

=*Sora* guintur (rat). Kajjala (lamp black)=*Sora* koyi (black). Kantha (throat)=*Sora* kankha. Galā (throat)= Sakai gālo, gloh. Catura (clever)=*Ho* cutur (cunning). Jāla (net)=*Mārāthi* jāl. Dimba (egg)=*Beng* dim=*Sora* tembe. Pundarka (white lotus)=*Ho* pundi=*Birhor* ponde= *Korwa* pundi (white)=*Santali* ponda for a light-coloured girl. Lāngula=*Khasi* lynkor, lenkol (plough). Baḍisa= *Santal* barsi=*Mundali* bars=*Beng* barsi (fish hook). Mayura (peacock)=*Tam* mayil=*Kol* marak. *Magy* vas (iron)=*Vog* bes=*Fin* vaske=*Somoyed* basa, veza=*Mundari* basi=*Santal* pasi=*Mon* pasai=*Malay* bas,=*O Jav* ves=*Batak* bosi=bese. Lāṅgula, liṅga (ploughshare, penis)=*Jav*, *Samang*, *Annam* loong, *Malaya* langala, *Khasi* lynkor, meaning both digging stick and penis.

Sanskrit and Dravidian.—Alaka (curly lock of hair)=*Tam* alakam=*Kan* alaka=*Ger* loke=*Gk* lygos. Kamala (lotus) *Kan* kamale=*Tam* kuvalai=*Kan* koval. Kāñcikam (sour rice gruel)=*Tam* kani=*Kan* ganji=*Mal* kanni. Kalā (art) =*Tam* kalai. Kānanam (forest)=*Tam* kān. Anala (fire)= *Tam* anal=*Kan* anala (heat). Atavi (forest)=*Tam* atavi= *Tel* adavi. Kallola (wave)=*Kan* allola-kallola (a great wave of water). Pujā from *Tam* pu (flower)+je=*Tel* che =*Kan* ge, meaning offering, that is, pujā=flower offering.

Bengali developed from Prākṛita and not from Saṃskṛita.

Baṅglā	Prākṛita	Saṃskṛita	Baṅglā	Prākṛita	Saṃskṛita
dudha	dudha	dugdha	Pāthara	Pāthara	Prasthara
dai	dahi	dadhi	lun	lona	lavana
piśī	piûccha	pitri-svasr	kān	kanna	karṇa
ghi	ghiya	ghṛitam	vijali	vijjali	vidyuta
caka	cakka	cakram	vākala	vakkala	valkala
dublā	dublā	durvala*	siyāla	siyāla	śṛigāla
ghara	ghara	gṛiham	ghora	ghoro	ghotaka
duāra	duāra	dvāram	bhātāra	bhattar[1]	bhartā
bau	bayu	vadhu	pond	poñd[2]	pāyū

*from *L* debilis; de (off)—bili=(*Skt* bala, strength).

[1] *L* fututor=*Fr* fouteur. [2] *L* podex.

Chapter III

HEALTH AND YOUTH

Health and youth are usually associated with balanced nutrition and endocrine functioning, though in stormy temperate climate, growth is more rapid and there is the earlier onset of puberty whereas in depressing moist heat, there is delay in body growth and adolescence. Meat stimullates gonad-stimulating hormones, elaborated in the anterior pituitary in which three gonado-tropins have been identified: 1) follicle-stimulating hormone FSH; 2) interstitial-cell-stimulating hormone ICSH; (3) luteo-tropic hormone LH. FSH stimulates germinal cell function in each sex. ICSH stimulates in the male the interstitial (Leydig) cells to secrete *androgen*. ICSH stimulates in the female the secretion of *estrogen* from antrum-containing follicles, causes ovulation and brings out the formation of corpus luteum: LH develops corpus luteum and progesterone. LH compliments ICSH and even the minute amount augments its activity. ICSH and LH are both glyco-proteins. With estrogenic activities, the face assumes expressive mobility, and cheeks become roundish with fatty deposit. Eyes become bright and restless. Hair on the head becomes glossy, abundant, long, silky and luxuriant. The skin becomes soft, warm and velvety. Female beauty gives sexual stimuli by visual impressions to facilitate propagation of the race. Firm high globular warm breasts are sexually alluring for they indicate the healthy functioning of the overies through estrogen secretions which also promote the growth of the uterus. Broad hips and protruding buttocks which involve a large palvis with the greatest curvature of the sacrum facilitate the entrance of the baby with large head, usually indicating a highly organized nervous system. Nervous energy and intelligence impart emotivity and impress on the face and eyes mobile expressions.

Early adolescence, especially for a maiden, is like floating down a broadening river without steering rudder, chart and direction into an estuary. Land marks recede into distance. The water deepens and changes its color. The currents and tides are complex. The bark of life is frail, liable to be tossed by physiological and emotional storms and tensions, at the mercy of the wind and the wave, aimlessly drifting in the darkness of ignorance amidst hidden rocks and shoals. But she is sympathetic and altruistic. She has an impulsive intuitive grasp of things. Personal appeal more than logical argument is however effective with her. Especially at puberty when the first menstruation sets in, she enters the period of storms and stresses. For one or two days before and on the first day of menstruation, some pelvic, lower back and lower abdominal heaviness with possibly bladder irritability, pricking and tension in the breasts, and on the first day very slight cramping lower mid-abdominal pain are felt only in ovulatory cycles. Anovulatory menstruation is the general rule for the first 2 to 3 years of the menarche. The general symptoms are however lassitude, fatigue, nausia with slight depression and irritability. There is an overactivity of the apocrine glands on the vulva (*jaghana*) and axillae, secreting an odoriferous fatty moistened substance. All the pelvic organs are in severe congestion and there is nervous irritability. As a reflex, the breasts are enlarged in volume and tension and are very sensitive. With the pelvic nervous irritability, the entire nervous system becomes impressionate. She suffers from headache, restlessness and excitability. She is easily carried away by emotions. There is a struggle between the cerebral and reproductive system which subconciously obtrudes on the former. A great amount of subcutaneous fat increases before adolescence and a much greater amount after it. Until the age of 7 or 8, the growth of male and female children is essentially the same. But subsequently the sexual differentiation begins. It first manifests itself as early as 8 to 10 years of age in the development of female pelvis which now assumes wider proportion and is accompanied by a deposit of fat over hips, breasts, and later over the shoulders, thorax and pubes. This is also the time when the estrogenic hormone is found in the blood. The growth of the hair over the symphysis pubes (*upastha*) generally begins after the breast changes have occurred, and is present at the first menstruation. However, the hair may not normally grow in the axillae until later after the menarche.

Puberty.—At the commencement of puberty, hair begins to appear on the axillae, on the mons and the labia majora. The mons (*jaghana*) is covered with hair which beginning in the central part spreads slowly to its full and very variable extent, grows for several years in density and rigidity. The adipose is developed and integument thickens, making the mons fatty and roundish. The labia majora enlarge and become turgescent. The labia minora hypertrophy, especially the upper pole where they surround the clitoris which now becomes an erectile organ. In the virgin, the labia minora are thin and relatively narrow; but with copulatory exercises they become thicker and elongated. The fatty growth of the vulvar lips reduce the rima. The fat gain is more pronounced on the medial than on the lateral side of the leg and the inner part of the thigh. With the rapid growth of the thighs and hips, the dartos muliebris of unstripped muscular tissue is enlarged more than the fat, integuments, nerve and sebaceous glands. The hymen (*syūman*) grows in thickness and tenacity. The galactophores and the supportive areolar tissues develop rapidly at every menstrual period. The circle round the nipple or the areola enlarges and the nipple projects and grows firm, and its sensitiveness increases. Fat also develops and the alveoli enlarge in the body of the breasts, making them roundish, firm and resilient. In the pelvic region the iliac arches broaden. The symphysis is enlarged to such an extent as to rotate the neck of the femur. These changes give firmer support to the large iliac and glutial muscles and cause noticeable modification in posture and carriage. Complete pelvic development is rarely attained till well into the twenties. Symphysis pubis softens and expands to a small extent during pregnancy and labor, thus rendering easier the escape of the fetal head. Secretion takes place in Bartholin's (*syandana*) glands. Fallopian tubes also show a great increment of growth in para-menarcheal period. At the commencement of the menstruation, os externum is closed; progressive dilation occurs until the function is established when the cervical canal will admit the tip of the examining finger. The onset of menarche depends not so much on race or climate, but on nutrition, endocrine functioning and environmental stimuli. The onset of menstruation of Negress in North USA begins at 13, in South USA at 13½, in West Indies 14 to 14½; in Africa 14½ to 15½ years. English girls begin menstruating at 13, Italians in USA 13½ and at Naples 14½ years of age. The expansion and densification of the bones at the base of the skull so often seen in flat x'ray photographs suggest a hypothalamic stimulation of gonadal activity in precocious sexual development in girls. The weight of the uterus at birth and up to 5 years of age is about 5 grams. It develops slowly and undergoes a marked increment of growth, immediately preceding the onset of first menses between 11 to 15 years, weighing about 6.50 grams. In addition to the size of the whole organ, there is also change in the relative proportion of the cervix and the body of the uterus (*udara*, *jarāyu*). At birth the cervix makes up over ½ of the total length of the uterus, a characteristic which persists in cases of hypoplasia of the genital organ; under normal conditions, it grows markedly after 6, and at menarche, it is longer than the cervix. At pubrety the sex-hormones—estrogen in the female and testosterone in the male—stimulate positive nitrogen retention, growth of tissue, bone growth and the closure of the epiphyses. Thus if puberty appears prematurely, rapid bone growth and epiphyseal closure occur and are attended by a shorter stature and disproportionately short arms and legs. Conversely if the sex hormones develop slowly at later period than usually, epiphyseal closure may be delayed, and bone growth continuing results in tall stature with long arms and legs. Post menopausal women and climacteric men, when there is inadequacy of sex-hormonal secretions, lose calcium at the daily rate of about 100 mg. Back discomfort may be due to chronic withdrawal of calcium from the spine, osteoporosis. If the pituitary is removed in prepubertal animals, sexual infantalism is indefinitely prolonged; while if the operation is performed after puberty, there is atrophy of the entire reproductive system.

The Testis is one of the 2 male reproductive glands (*granthi* =*L* glandis=*O Slav jeladi*) located in the cavity of the scrotum. Each testis is an oval body about 5 cm long and 3 cm across, covered by fibrous tunica albuginca from which trabeculae descend, carrying blood vessels, lymphatics and nerves. To tunica albuginca are attached fibrous septa, dividing up the testis into some 300 compartments, each containing about 3 convoluted seminiferous tubules where spermatogenesis takes place. Inside the stroma and between the tubules, groups of polyhedral interstitial (Leydig) cells are found. At puberty under the stimulus of the anaterior pituitary gonadotropin interstitial cells stimulating hormone ICSH, the interstitial cells of Leydig secrete *testosterone*=androgen. And another gonado-tropin follicle stimulating hormone FSH accelerates seminiferous tubular maturity and sperm formation. Testosterone in turn stimulates the seminiferous tubules, causing spermatogenesis and has also stimulating action on the male accessories—the prostate, seminal vesicles, the Cowper's glands, the epididymis. The tubules in undescended testis do not have spermatogenesis, as it needs a lower temperature than the body heat for the purpose. On cross section these seminiferous tubules, each of which is about 80 cm long, show a basement membrane on which 3 irregular layers of epithaline cells can be distinguished. The outermost layer of cubicules or spermatogones gives rise by cell division to the second layer—spermatocytes which are large cells with large nuclei which by further division give rise to spermatids—small polyhedral cells. By modification spermatids become spermatozoa, and during this process they cluster round the supporting cells of Sertoli which are large cells, rich in glycogen and lipids. The germinal cells are easily destroyed by ischemia. The occlusion of the testicular artery for an hour leads to irrevocable destruction of all spermatogenic cells; only the cells of Sertoli survive as macrofaghs. About a dozen ductules pass from the upper part of rete testes into a single canal which by its convolutions makes up the epididymis where spermatozoa are stored until ejaculation takes place. Production contiues whether ejaculation occurs or not, and the spermatozoa not ejaculated are reabsorbed in the vas deferens. The canal of the epididymis is continued with the vas deferens which passes down into the prostate at the base of the urinary bladder. Here it is joined by the duct of the seminal vesicle to form a short ejaculatory duct which passes through the prostate and enters into prostatic urethra. If vas deferens is tied there is degeneration of tubules and cessation of spermatogenesis; the spermatozoa undergo degeneration and liquifaction and are absorbed. The spermatozoa move forward and are stored in the seminal tubules. Contraction of the seminal vesicles propel the fluid secreted by these vesicles into the urogenital urethra. Here the secretions of the seminal vesicles and of the prostate gland are joined by the Cowper's gland, located in the cavernous part of the urethra. Nearly 100 millions to 200 millions of spermatozoa are produced daily. The first portion of ejaculation is derived mainly from the bulbo-urethral glands, followed by prostate secretion, and finally by the spermatozoa, suspended in the vesicular secretions. Less than 10 p. c. of the volume of the seminal ejaculation is occupied by spermatozoa and the remainder being the seminal plasma. The seminal plasma acts as an activator and as diluent for the spermatozoa which are tightly packed in epididymis. The prostate, a gland, chestnut-like in shape, embraces the neck of the bladder and the first portion of the urethra; the collicullus seminalis in the state of erection[5] fills out the urethra so completely and closes it up so tightly that not a drop of urine can pass out of the bladder or escape during ejaculation. Prostate secretion forms about 20% of the semen which is colourless and slightly acid due to the presence of citric acid; it contains proteolytic enzymes—fibrinolysin and fibrinogenase—and also acid phosphatase. Seminal vesicles provide about 60% of the volume of the semen; their secretion is yellow owing to the presence of flavins and is sometimes deeply pigmented, containing a large amount of potassium, also ascorbic acid, ergotheoneine, fructose, phosphorylcholine; they secrete a peculiar mucus which is thick, fibrinous, glairy and albuminous, forming the bulk of the semen, acting as a diluent nourishing food for the thick spermatozoa. The Cowper's glands secrete a mucous albuminous fluid of alkaline reaction. The urethral glands secrete a viscid clear fluid which with that of Cowper's gland serve as a lubricant for the walls of the urethra. The semen is a thick, colorless gelatinous opalescent non-transparent viscid fluid, resembling boiled starch. When the seminal vesicles are loaded with spermatozoa, nervous tension is produced; when during night, the bladder and the rectum are filled, their pressure added to the nervous tension, if reinforced by voluptuous dreams, causes contractive evacuation of the seminal vesicles, known as nocturnal pollution, relieving tension and congestion. When seminal vescicles are not regularly unloaded, by back pressure they cause degeneration of seminal tubules, and interstitial cells grow at their cost, increasing thereby the production of androsterones, vitalizing muscular and nervous energy. The seminal plasma contains 0.2% fructose, 0.4% citric acid, 0.01% ascorbic acid together with phosphorylcholine, inositol. Spermatozoa obtain energy from the seminal fluid and vaginal secretions by the anaerobic break down of the fructose to lactic acid which is oxidized, if oxygen is present, with liberation of energy. The spermatozoa within the epididymis, for lack of oxygen, can survive for a month. Outside the body, spermatozoa can survive only for a short while; a few days at 4° C. Hyaluronidase of semen is carried by the spermatozoa, but a certain amount leaks out into the plasma. If due to continence, there is no contraction and consequent ejaculation, the loaded and engorged seminal vescicles exert back pressure on the seminiferous tubules which degenerate and atrophy; the space is occupied by the interstitial cells which proliferate at their cost. It is the interstitial cells that produce testosterone, promoting muscular vigor, nervous energy, virility and secondary sexual characters. The liver is the main site of catabolism of testosterone and of the conjugation of its known metabolites with glucoronic or sulfuric acid. The major identificable urinary metabolites are the 17-ketosteroids, androsterone and etiocholanolone which are excreted principally as glucoronides. Leydig cells are capable of synthesizing testosterone from available precursors such as cholesterol and acetate by the enzymatic conversion of these compounds to progesterone and 17-hydroxy-progesterone and then to testosterone and androstenedrione. There is good evidence that the testis can convert testosterone to the aromatic steroid-estradiol-17B. The estrogen, estradiol-17B and estrone have been isolated from human testis and testicular tumors. Deoxyribonucleic acid DNA has been extracted from the human sperm—the bearer of hereditary genes.[6]

Androgen conserves nitrogen and assists in the build up of proteins. It also favors potassium, phosphorus and sulphur retention, and for these reasons are important to the development of muscles and of growth of bone. It also causes the retention of sodium chloride and fluids. It accelerates epiphyseal closure. Androgen is responsible for the development and maintenance of secondary sex organs and characters such as penis, prostate, vasa, seminal vesicles, hair on the face and axillary sweating. In large and continuous dosage, it inhibits the output of gonadotropin by the pituitary and therefore depresses testicular functions (including spermatogenesis). Testosterone and allied substances known as androgens, appear to act by increasing the rate of blood flow to tissues which are sensitive to androgens, namely the penis, prostate, seminal vesicles, scrotum, vas deferens and epididymis. In rats lack of argimine in the diet leads to azoospermia.

The Ovary is under the direct control of the Anterior Pituitary gland which secretes 1) Follicle stimulating hormone FSH which stimulates the growth, development and maturation of the follicles into ova; 2) Interstitial cell stimulating hormone ICSH which stimulates the secretion of estrogen from antrum-containing follicles, causes ovulation and female curves; 3) Luteo-tropic hormone LH which brings out the formation of corpus luteum at the site of the ruptured ovum and secretes progesterone, possibly also the hormones—prolactin and relaxin. Surprisingly small tumors of the ovary may produce sufficiently large amounts of estrogen to accomplish secondary sex development and functioning. Castration of male fetuses at an early critical period prevents the differentiation of male structures and leads to entirely female development of ducts, urogenital sinus and external genitalia. This proves that a fetal testicular morphogenetic hormone is essential to prevent the inherent tendency of the fetus to feminize. The pituitary and the ovaries are affected by a deficiency of pyridoxine. Ovarian glands are very sensitive to the deficiencies of the vitamin B-complex.

Estrogen is secreted by the growing follicles of the ovary and to a lesser degree by the corpus luteum. Estrogen plays a major role in determining feminine sensitivity and shyness, feminine curves, soft skin and luxuriant scalp hair. Estrogen promotes the development of axillary hair and pubic hair of female distribution. But so far as the growth of axillary and pubic hair is concerned, estrogen is less important than adrenal androgen. Estrogen stimulates the growth and activities of the vulva, vagina, uterus, fallopian tubes and the breasts. Estrogen increases their vascularity and stimulates their epithelial activity. It is responsible for the mobilization of intracellular glycogen in vaginal epithelium, and therefore for the normal activity and acidity of the vagina. The vagina is defended during sexual life by high acidity in which septic organisms can not exist; the acidity is dependent on the activity of Doederlein's bacillus that flourishes in presence of vaginal glycogen. It encourages the cornification of superficial vaginal cells to give a characteristic vaginal smear picture. Estrogen promotes vasodilation of the capillaries generally and induces hyperemia. Estrogen induces rhythmic contractibility of the uterus of good tone and low amplitude. The breast responds to estrogen by increased vascularity, general increase in size, pigmentation of the areola and epithelial growth; the last seen mainly in the lacteal ducts and nipple rather than in the acini. The tissues in the female pelvis—parametrium—contain muscle cells which hypertrophy and increase under the influence of estrogens. But even hypersecretion does not induce lactation which only occurs when its influence is withdrawn—as for instance following the birth of the placenta. Estrogen depresses the activity of the anterior pituitary as far as its output by follicle stimulating, lactogenic and thyrotropic hormones is concerned, but stimulates it to produce luteinizing and adrenotropic hormones. It follows that it stimulates lutein formation and adrenal cortical actions while it depresses the thyroid. Estrogen induces the deposition of calcium and causes bone formation. It thus brings the closure of the epiphyses and limits the stature and length of the limbs of the adolescent. After the menopause, deficiency of estrogen leads to osteoporosis. Excessive secretions or ingestions of estrogens in hepatic or renal deficiency may stimulate fibroid growths or the growths of a dormant or symptomatic carcinoma of the endometrium or the cervix and of the breasts. Extrensic factors like chronic irritation may hasten the development of malignancy.[7]

Estrogen and Progesterone.—The exact nature of the estrogen excretion pattern during the menstrual cycle is not yet well understood. There appears to be a peak at mid-cycle, followed by a small drop and a more sustained rise, and a second peak three or four days prior to the onset of the menses. The estrogen excreted probably does not represent more than 0.2 to 2 p. c. of the total estrogen in the circulation. It is elaborated by the ovaries as estradiol and converted to estrone and estriol or partially inactivated by the liver and the kidneys. The majority of these urinary estrogens are excreted as conjugated sulfates or glucuronidates. The estrogen excreted through the biliary ducts into the intestinal tract is reabsorbed. The follicle-stimulating hormone (FSH) causes the development and maturation of the ovum; and at mid cycle, it looks like a tumor and it bursts almost with an explosive force, spattering blood and follicular liquors all round. Following the ovulation, the follicle fills with blood and becomes organized as the corpus luteum and under the stimulation of LH elaborates progesterone. Mature follicle just before ovulation produces a little of progesterone. Progesterone appears in the urine as pregnanediol glucuronidate which can be measured quantitatively to indicate whether ovulation has taken place. The estrogen is responsible for the repair, the endometrial growth that occurs during the proliferative phase of the cycle, and the cornification of the vagina. The epithelial layer of the ducts rapidly spreads over the bleeding surface and aids in the cessation of the bleeding. Progesterone exerts its characteristic effects only if preceded by estrogenic activity and exerts a maximal effect only if estrogen stimulation accompanies progesterone action. The glands (*granthi*) become progressively coiled and enter into a secretory phase. The hormonal prerequisite for menstruation is the withdrawal of estrogen support to the proliferative endometrium. The simultaneous withdrawals of estrogen and progesteronal support to the secretory endometrium body induce the regression of the spongy layer and of the secretory glands, causing thinning of the endometrium. This sets up essential condition for the occurrence of the menstruation which is dependent on local changes. These include a marked increase in the coiling of the spiral artereoles as a resultant thinning of the endometrium, hemostasis, resultant tissue edema and tissue necrosis. The necrotic tissue appears to liberate a vasoconstrictor substance. Bleeding occurs as diapedesis from venules, arterioles and capillaries.

The nervous symptoms and the edema of premenstrual tension result from hormonal changes and a decrease in the woman's threshold of irritability. Both estrogen and progesterone cause sodium and water retention and increased tissue irritability. Girls with ovarian insufficiency fail to undergo sexual and follicular maturation; consequently epiphyseal closure is delayed. As a result linear bone growth continues; they become tall and their arms and legs become long. As there is no follicular rupture, there is no formation of corpus luteum and its secretion progesterone. Therefore there is no premenstrual tension and molimen.[8]

Menstruation cannot occur unless there has been prior estrogen activity, followed by estrogen withdrawal which promotes endometrial desquamation. Menstruation may occur without ovulation and occurs as a result of excess of estrogens. Usually however menstrual bleeding is related to a decline in estrogen activity or withdrawal of estrogen therapy. In the normally ovulating woman in whom conception does not occur, estrogen output increases under the stimulus of Follicle Stimulating Hormone FSH until ovulation occurs. Thereupon it gradually declines, and progesterone secretion from corpus luteum which is its main source of production increases, though some progesterone is secreted by the granulosa and theca cells of the ovarian follicle. Progesterone postpones estrogen withdrawal bleeding, and menstruation occurs when progesterone output ceases with the disintegration of corpus luteum. The corpus luteum persists if pregnancy takes place for 3 months during which time the placenta is developing, producing necessary hormones for the completion of gestation. If the ovum is not fertilized, the corpus luteum persists only for 12 days, and with its disintegration, the progesterone secretion rapidly subsides. Prolonged administration of estrogen and progesterone may cause gallstones. Gallstones develop in mothers who have borne several children when their biliary physiology is disturbed as during pregnancy. The production of estrogens and progesterone is increased through the placenta. Progesterone stimulates the development of the alveolar system of the breasts. Many women experience breast discomfort and engorgement—nastalgia—in the premenstrual period. Pricking tension may be experienced in the breasts. The breasts are firmer and more prominent. And this may be an indicator that progesterone is being produced, and consequently, the ovulation has occurred. Progesterone relaxes the uterus, and when its effect is withdrawn, cramps occur. This molimen is usually associated with ovulation. Progesterone is metabolized and excreted in the urine as sodium pregnanediol glucuronidate. Progesterone is known to cause acne, and it is probable that this hormone plays a part in causing acne vulgaris in women. During the premenstruum about 1/3 or more of normal women have an increase in body weight from 1 to 4 kilos. The gain is accompanied by a general edema, the puppiness of eye-lids, face and extremities. There is also oliguria and retention of sodium, chlorides and water. With the onset of menstruation large amounts of urine are voided and there is an increased excretion of sodium and chlorides, resulting in a rapid drop of body weight. Estrogen relaxes and enlarges while progesterone regresses and contracts the diameter of the internal and external os and the cervical canal.[9]

Ovulation may be ascertained by the fern text of the modified secretion of the cervix uteri; ovulation pain (mittelschmertz); ovulation bleeding; basal body temperature; a high excretion in the urine of anterior pituitary gonadotropin; the urinary excretion of pregnanediol during the post ovulatory period, indicating active corpus luteum; progesterone in the circulating blood. The cervical mucus is a muco-polysachride which breaks up into a protein fraction and hyaluronic through the action of a hyalu rondase enzyme. The cervical mucus increases and becomes thinnest at the ovulation period. This physical change represents hydrolic-cleavage. The end products of hydrolysis are glucosamine and glucuronic acid. The presence of glucosamine in the cervical mucus clearly indicates ovulation, as it is not found in any other condition. The scanty thick cervical mucus during the ovulatory period may be due to insufficient functioning of the cervical glands on their inadequate hormonal stimulation.

Nymphomania.—Profuse cyclic and acyclic uterine bleeding, associated with hyperplasia of the endometrium may be due to ovarian deficiency through lowered activity of the anterior pituitary. It is characterized by the development of numerous follicles and the absence of ovulation and corpus luteum formation, resulting in an excess of estrogenic effect on the endometrium, unaccompanied by progesterone restraint. There may be medium and large follicles in various stages of atresion. There may be granulosa-lutein cysts, theca-lutein cysts, cysts with complete degeneration of the epithelium. Excessive production of the pituitary follicle stimulating hormone and the inhibition of the luteinizing hormone might result in the hyperplasia of the endometrium and anovulatory nymphomania (madanonmāda=atyānanda). Theca-lutem cysts produce estrogen during anovulatory cycles. Bleeding occurs with the considerable reduction or cessation of estrogen production by ovarian follicles which have undergone extensive atresion. During menstruation, there is bright red color of the vulva which is succeeded by the appearance of a central area of purple and a peripheral of green. The purple luminiscence spreads and increases in intensity during the post ovulatory period and is marked in normal pregnancy. In pregnancy, there is an intensification of normally pigmented areas such as nipples and their aurolas and also of genitalia and pereneum.[10]

Thyroid under the stimulus of thyroid-stimulating hormone TSH of the anterior pituitary secretes thyroxine and triiodo-thyronine. Triiodo-thyronine is the true hormone of the thyroid and is five times more active than thyroxine. Thyroid increases oxygen consumption, lowers blood cholesterol and has a heat-producing effect. Excessive consumption of calcium in the presence of low iodide intake arrests the production of thyroxine. Numerous drugs exert likewise a blocking action on the synthesis of the thyroid such as sulfanamide, isonazide, para-amino-salacylic acid, cobalt, sulfur-containing thioura and its non-toxic derivatives thiourcils. Rutabhaga, carot, soyabeans, spinach, turnip, pears are goitrogenic, containing L-5 vinyl-2-thio-oxazolidone=goitrin. Goitrin is formed by the specific enzymitic hydrolysis from a thioglycoside precursor—pro-goitrin. Goitrin has the same potency in man as thiourcil. Thyrotropin stimulates the thyroid to secrete thyroxine which inhibits the further production of the pituitary thyrotropin. There is a reciprocal relationship between the circulating levels of thyroxine and thyrotropin, the pituitary acting as a thermostat to control the action of the thyroid. If the formation of thyroxine is suppressed by antithyroid compounds, the inhibitory influence of thyroxine on thyrotropin synthesis is removed, and a marked augmentation of thyrotropin output of the pituitary is pronounced, thus resulting in hyperplasia and hypertrophy of the thyroid (goitre) which however cannot increase the output of the thyroid. The administration of thyroxine causes depletion of the adrenal cortex. In hyperthyroidism adrenals are found to hypertrophy. In myxedema, the adrenals atrophy, and the outer third of the brow (bhru=*Z* bravat=*Gk* ophys=*Slav* bruvi=*Celt* brai=*Russ* brove=*OHG* prawa=*Pers* abru) became denuded of its hair. Ephinephrine stimulates the thyroid. Iodine from which thyroxine is synthesized in the thyroid is found in kelp, shrimp, lobster, sea-fish, kalmi sāk (Ipomea), hilsā (Chupea ilis), onions, egg yolk, pineapples, ginger, black pepper, coriander, cloves, skins of apples, plums and tomatoes. But the excessive consumption of iodine may suppress TSH and thus block the synthesis of thyroxine. Exothalmos substance EPS is found

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in the pituitary, the injection of whose crude product produces it. At the time of puberty, the average weight of the thyroid of the female is almost double than of the male. The thyroid is an important factor in body growth, in the development of sex organs and the secondary sexual characteristics. Hyper-vitaminosis reduces thyroidic activities. Long standing hypo-parathyroidism may lead to epileptic seizure and secondary mental retardation.

The mid-cycle ovulation pain (Mittleschmerz), sometimes accompanied by ovulatory hemorrhage (Kleineregel), mucoid or muco-sanguineous vaginal discharge, observed amongst 50% of menstruating women, is caused by (1) increased bursting tension of the Graafian follicle and the ovary; (2) contraction of the tube or the uterus; (3) irritation of the peritoneum by the discharge of the fluid and the blood from the bursted follicle; (4) muscle cramps in the caecum or the pelvic colon. The pain is like that of stabbing—sudden and sharp—in the one or the other lower quadrant, frequently interchanging one month on the one side and the next month on the opposite side, lasting only for a few seconds or several minutes, occurring from the 12th to 16th day from the first day of menstruation, most accentuated in early twenties from the age 18 to 28.[11]

The Liver (yakṛit=*Z* jagare=*L* jecur) possesses an amazingly varied array of biochemical activities which are essential to the proper functioning of the body. It plays a central role in the metabolism of fats, carbohydrates and proteins, and produces metabolites necessary for the activities of other organs and tissues. The liver absorbs bacteria and particulate matter by the reticulo-endothelial cells, the formation and coagulation of the blood, the metabolism of iron and other mineral ions and the formation of the bile to aid in the digestion and absorption of fat. The liver is the chief store-house of vitamin A in man; the proportion may range from 60 to 70% of the total store in the adult and may be as high as 90% of the infant. The liver also converts carotine to vitamin A. In the absence of vitamin K which is fat-soluble, found in green vegetables and fish meal, the liver is unable to carry its normal task of elaborating prothrombin (deficiency of vitamin K causes specially a deficiency of the so-called *delta factor*, one of the several substances concerned in a complex of prothrombin system). The liver plays an important part in inactivating androgens and estrogens which function it fails to perform in vitamin B-complex deficiency. Hepatic siderosis has been observed amongst the Negroes with the following clinical symptoms: (*a*) Grey black pigmentation, particularly on the skin of the face; (*b*) Alopecia (*indralupta*) of the outer third of the eyebrows and of the axillae and pubis, the latter resembling the female estraceon; (*c*) Testicular atrophy with distinct loss of tension of the gland, associated with impotence; (*d*) Hepatomegaly, the lower edge being firm, and in the presence of cirrhosis (praveṇikā), also irregular; (*e*) History of poor diet, consisting primarily of maize products with occasional supplements of meat, vegetables and dairy products; (*f*) Consumption of appreciable quantities of Kaffir beer with high iron content. Cancer of the liver is common among the Bantus and the Javanese for lack of proteins and vitamin B-complex, but with high iron and low phosphorus in their regimens. Phosphorus reduces iron absorption through the gut wall. The liver is a great storage depot of the fat-soluble vitamins A, D and K. The liver also forms and stores the water-soluble vitamins B_1, B_2, C and E. The liver detoxicates poisonous substances. In protein deficiency in the diet, the protein cells of the liver are destroyed, reducing the functional activities of catalase, phosphatase, arginase and cathespin. In hepatic insufficiency, loss of body hair may be pronounced on the chest and abdomen. Testicular atrophy is a common feature in hepatic cirrhosis. The testes are softer and smaller than normal with accompanying loss of libido and potency. Gynecomastia is observed in about 40% of men with portal cirrhosis. This of course is unequivocal evidence of increased estrogen in the circulating blood, originating from adrenal cortex, for the hepatic activity destroys the effects of estrogen. The causes of hepatic coma in advanced cirrhosis of the liver may be the amonia poisoning, arising from the failure of the liver to remove and convert to urea the amonia brought to in the portal blood from the gut.

Fats whether of animal or vegetable origin with a melting point below 50°C are equally digested. The hydrolized and emulsified fatty acids and glycerals appear to be absorbed into the portal vein and reach the liver where they undergo metabolism. Nervous tissue contains large amounts of phosphatides and cholesterol esters, both of which contains fatty acids. Although much of the fat of the body may be formed from the carbohydrates, yet fat is needed in the diet, for certain essentials such as vitamins A, D, E, K can be adequately absorbed only when dissolved in fats; and unsaturated fatty acids, essential for healthy nutrition, cannot be produced from carbohydrates. Milk, if the milk producing cow is fed on carotine containing food, and fish liver oils contain vitamin A. Palm oil is an excellent source of carotine. But palm and olive oils are said to be destructive to A as it is more soluble in them and it is rapidly carried away from the intestines. Rancid fats and saturated fatty acids tend to inactivate A through oxidation. Animal fats, including even milk cream and butter, consists mainly of saturated fatty acids, while vegetable *oils* contain chiefly unsaturated fatty acids. Saturated fatty acids raise the level of blood lipids—cholesterol, lecithin and neutral fat—which being deposited in the walls of the arteries result in high blood pressure, coronary thrombosis and even infraction. Fat ingestion accelerates blood clotting time. Though the vegetable oils are generally unsaturated, in the process of hydrogenation, they become saturated. Unsaturated essential fatty acids promote the synthesis of lipotropic choline which prevents the accumulation of the lipids in the liver and on the walls of the arteries. Cholesterol is formed by the improper chemical processing of saturated fatty acids in the liver and hardens in the arteries; this makes the arteries smaller inside and the heart has to push harder to get the blood through, creating high blood pressure. Pectin, a vegetable gelatin, lowers blood cholesterol level. Cholesterol, however, is the major precursor in the formation of adrenal steroids. Hypertension in 10% to 15% cases is secondary to some obvious causes such as damaged kidney (*vṛikka*), enlarged prostate (*vanishthu*), tumor of the suprarenal or pituitary gland, overactive thyroid or brain tumor. In low blood pressure, as in adrenal hypofunctioning, the pressure is sustained if one remains in a lying state; but if one stands up suddenly and remains still in a standing state, there is a sudden fall of pressure, and there may be syncope. Saturated fatty acids of which *palmitic* and *stearic* are the most common are volatile and water soluble and remain hard at ordinary temperature. Unsaturated fatty acids—*oleic*, *linoleic*, linolenic and arachidonic—are non-volatile and remain oily at the ordinary temperature. Percentage of essential unsaturated fatty acids in: soybean oil 66.9%, cotton seed oil 50.4%, sesame oil 40%, mustard oil 32.5%, ground nut oil 27.4%, olive oil 15%, palm oil 10.9%, coconut oil 2%, hydrogenated oil 0%; human milk fat 13.3%, cow's milk fat 5.8%, goat's milk fat 1.5%, butter fat 4.3%. Homogenization of the milk by forcing through a nozzle at high pressure regulates its fat globules to below 0.0002 mm in diameter and therefore promotes its digestibility. Homozenized milk tastes richer due to the greater surface of its fat.[12]

Adrenal Cortex secretes (1) glucocorticoids to promote the metabolism of carbohydrates, the synthesis of glucogen in the liver, stimulation of glucogenesis from protein, reduction of the number of eosinophils and to exert an anti-inflammatory and anti-allergic action; (2) mineralocorticoids to promote the retention of sodium in the kidney by blocking the action of the anti-diuretic salt-retaining hormone aldosterone which is excreted in the urine in hepatic ascites and renal edema; (3) 17-hydroxy-progesterone; (4) estrone; (5) 11-hydroxy-iso-androsterone. The adrenal cortex normally begins secreting a mildly active androgen at puberty which in the female is responsible for the appearance of 17-ketosteroids [17A] in the urine. This androgen stimulates the growth of axillary and pubic hair which appears at puberty. Female patients with Addison's disease, usually due to the tubercular lesion of the cortex, and Simmond's disease due to the atrophy of the pituitary, excrete no 17-ketosteroids and lack axillary and pubic hair. Lack of cortin is the cause of Addison's disease. Cortin may be administered by injection or by planting cortex crystals under the skin. Since normal ovary is the site of the origin of urinary androsterone and etiocholanolone, it may perhaps be stimulated to increased androgenic activity by an overproduction of the luteinizing hormone by the hypertrophy of the ovarian theca intima, as in Stein-Leventhal syndrome. Theca cells may be a source of androgen as well as of estrogen. Thus either ovary or bilateral hyperplasia, adenoma or carcinoma of the adrenal cortex may be responsible for abnormal hirsutism and female virilism. Hyperplasia of the hillar cells of the ovary, arrhenoblastoma and adrenal-test tumors of the ovary are usually associated with ovarian hirsutism and virilism. Leydig cells of the testis elaborate both estrogen and androgen. Whereas the ovary elaborates estrogen only unless the hillar or vestigal Leydig cells become activated. Adrenal glands are larger and heavier in the female than in the male. Certain cortex tumors increase their secretion which has a tendency to change the sex characters; the female takes on male appearance and voice; the male may become feminine or more masculine. Stein-Leventhal syndrome's constant clinical features are secondary amenorrhea with anovulation, sterility and a tendency to the male type of hirsuties, underdevelopment of the breasts, hypertension, firm smooth nontender enlargement of the ovaries, 3-4 times than normal size. Polycystic ovaries may occur in acromegaly, adrenal cortical overactivity or endometrial carcinoma. In some cases of malignant diseases, the adrenal cortex becomes stimulated. Secondarily, perhaps through the pituitary deficiency of either of pantothenic or ascorbic acid in the diet reduces the secretion of the adrenal cortex and causes its atrophy. The essential physiological action of hydrocortisone and cortisone are (1) maintenance of distribution of water and sodium between the cellular and extracellular fluids; (2) maintenance of blood pressure; (3) necessary for renal excretion of water. Aldosterone is concerned with the sodium and potassium homeostasis and exerts its effect through the renal tubules; it exerts its action on the sodium potassium ratio of the saliva, sweat and faeces. A deficiency of vitamin A interferes with the production of cortical steroids. Thyroid appears to be necessary for conversion of B-Carotene to vitamin A. The absorption and storage of B_{12}=folic acid are reduced when the diet is deficient in B_6 =pyridoxin. B_6=pyridoxin deficiency is associated with adrenal insufficiency. The two areas of the brain's cortex which control the secretions of the endocrine glands are the hypocampus and the amygdaloid complex—known as the limbic system. The amygdaloid complex acts to stimulate the secretion of ACTH which in turn causes the release of cortisone from the adrenal glands. Hydrocortisone when secreted in the body has a vital role in the production of energy by the body. It is used as an important remedy

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for painful rheumatoid arthritis. The hypocampus acts to suppress the ACTH secretion.

Adreno-genital syndrome is produced by hyperplasia or tumors of the cortical zona reticularis. When it occurs in the female during intra-uterine life, at birth the adrenals resemble that of one year, rather than of a new born, cortex entirely of the adult type, loaded with lipids while the medula is well developed; the development is heterosexual leading to female pseudo-hermaphroditism with marked hypertrophy of the clitoris. The persistence of the fatal type of adrenals excludes the other secretions (mineralo and gluco-corticoids) of the cortex, so there is the paradoxical situation of adrenal insufficiency, combined with hyper functioning of the adrenal cortex. When it develops during infancy or childhood, it results in sexual precocity. Boys show signs of early masculinazation with enlargement of the penis, appearance of pubic and sometimes of facial hair, acne, deepening of the voice and excessive muscular development. In girls sexual precocity is combined with mascularization. The clitoris is enlarged; axillary and pubic hairs develop early, and there may be growth of hair on the face, trunk and extremities. In the adult female, symptoms of virilism become manifest. Virilism may also be produced by arrhenoblastoma, luteuma, polycystic disease of the ovary, tumors of the hypothalamus or pineal body. Feminization of the adult male is sometimes seen due to an adrenal cortical tumor leading to excessive production of estrogens, resulting in gynecomastia and atrophy of the genitals. Lorain-Levi syndrone is prepubertal association of infantalism with destructive lesions of the pituitary. Hilus of the ovary contains nests of cells which are morphologically identical with the Leydig cells of the testicles. Hilus cell tumor of the ovary which has a virilizing effect is an exceedingly rare growth.[13]

Chronic adrenal cortical insufficiency.—Addison's disease, in most instances due to tubercular lesion, is manifest through loss of weight, asthenia, fatigue, anorexia, nausea, vomitting, pigmentation of the skin and mucous membrane, hypotension, dizziness, lower concentration of sodium in the serum, atrophy of the genital organs, and amenorrhea in females.

Pituitary Cachexia=Simmond, Sheehan, Summer's syndrome.—During pregnancy the pituitary enlarges and its circulation increases. If acute blood loss or shock occurs at the time of delivery, the enlarged pituitary becomes ischemic, and thrombi form with infraction and necrosis of the gland. If two thirds of the gland are destroyed in the pathological processes, the following symptoms are observed, involving the target organs: (1) gonadal atrophy, amenorrhea, loss of libido; (2) complete loss of pubic and axillary hair; (3) absence of normal skin pigmentation, especially around the nipples; (4) a flabby facies with thinning of the eyebrows; (5) absence of sweating; (6) the thyroid is inpalpable; (7) increased sensitivity to cold; (8) weakness and mental torpor with slow soft speech; (9) low basal metabolic rate about—35%; (10) very low urinary excretion of 17-ketosteroids, generally under 1 mg per day; (11) a tendency to spontaneous hypoglycemia and dangerous coma; (12) failure of water diuresis; (13) raised blood cholesterol as a rule; (14) lowered blood sodium and chloride as a rule. Adrenal cortex, thyroid, gonads and genital tracks are found atrophic at the autopsy. The synthesis of pituitary hormones is decreased when the diet is deficient in proteins.

Adreno-cortical gonadal accessories:—The pubic hair remains normal and sex urge surges strongly in some women even for years after bilateral oopherectomy. For androgens and estrogens are secreted by the adrenal cortex of both sexes; and androgens as well as estrogens by the thecolutein and hillus cells of the ovary; as Leydig cells of the testes secrete both androgens and estrogens. The overfunction of the zona reticularis leads to undue production of sex hormones with resultant adrenal virilism—the adreno-genital syndrome. Adrenal androgens are probably produced by the zona recticularis and consist of androsterones and other pregnane derivatives. Some may be intermediate products between progesterone and cortisone. The secretion of testosterone by the testis is under the influence of the luteinizing hormone of the anterior pituitary. The output of the androgens by the adrenal cortex is controlled in both sexes by adreno-cortico tropic hormone (ACTH) of the anterior pituitary. Androgens are metabolized by the liver and are excreted in the urine as androsterone, dehydroandrosterone and some other inert substances. The excretion of 17-ketosteroids in the urine roughly reflects the output of androgens. Adrenal cortex deficiency causes the decrease in the excretion of 17-ketosteroids and the deformities of the toes. Distrophia adiposo-genitalis (Froehlic's syndrome) is explained primarily on the basis of hypothalamic disturbance which operating from childhood results in genital hypoplasia, amenorrhea, obesity and sleepiness. Due to oxidizing influences, the hypersecretion of testosterone and estrogens makes youths slim and slender. Hypothalamus also controls appetite, sleep, temperature and water balance of the body.

Vitamin A=Carotinol is essential to proper vision, to the maintenance of normal cell growth, especially of the epithelium in the respiratory, digestive and genito-urinary tracts. In its deficiency, sebaceous, sweat and lacrymal glands become atrophic and the ducts are plugged with keratinized epithelines which often project in horny plugs from the mouth of the gland; in the bronchi and upper air passages, ureter, kidney, pelvis, uterus, vagina, esophagus, similar changes occur. It may lead to the formation of urinary calculi by impairment of epithelial structures and resulting keratinization. The disquamated keratinized material could serve as midus about which crystalline material could deposit. Carotinol is fat soluble, resistant to 120°C, but destroyed by aeration at all temperatures and exposure to fresh air and light. It is found in animal liver, fish liver oil, carrots and yellow fruits. The daily requirement for it is 3000 IU. The bile is essential for the absorption of carotine in animals as in man. B_1=Thiamin=Aneurin is needed for the complete burning of carbohydrates. It is essential for good appetite, digestion and elimination of intestinal wastes. Without enough thiamin in the diet, the tone of the intestine is reduced; constipation may occur; stretching and ballooning of the intestine is the common result. Thiamin is water-soluble. It is found in rice, wheat germ, yeast, egg yolk, potatoes, peas, beans. In the deficiency of Thiamin in the diet, beriberi, low blood pressure, nervous irritability occur. The daily requirement of B_1=Thiamin is about 300 IU. B_2=Riboflavin supplies essential enzymes for the metabolism of both proteins and carbohydrates. It increases the resistance to staphylococcal and streptococcal infections. In riboflavin inadequacy, eye fatigue, itching, burning sensitivity to light, frontal headache, scaly condition of the skin around the nose and ears with cracks in the corners of the mouth, actual sores on the lips—chilosis, ulcerative colitis, growth of capillaries into the cornea of the eyes, blurred vision, soreness and swelling of the eyelids, burning sensation of the soles of the feet, and sometimes of the palms of the hand, alopacia (*indralupta*), cataract of the eyes, nervous irritability are observed. Riboflavin is present in the retinal pigment of the eye where it plays an important part in light adoptation; together with pyridoxine it is involved in the conversion of tryptophan to nicotinic acid. Riboflavin is water soluble. It is found in yeast, milk, legumes, egg-white, liver, fish roe and leafy vegetables. The daily requirement is about 1.8 mg. B_3=Pantothenic acid is antidermatic. The deficiency of either pantothenic acid or ascorbic acid in the diet reduces the secretions of adrenal cortex and provokes its atrophy. B_5=Niacin=Nicotinic acid deficiency in the diet causes pellagra, a disease of 3d—diarrhea, dermititis and dementia and diminished amount of hydrochloric acid. It is chiefly found in milk, legumes, fish, meat, egg and proteins. In converted rice which is parboiled under pressure before husking and milling, nutrients are transferred from the bran and the husk to the endosperm, making the rice rich in thiamin and niacin. The daily requirement of nicotinic acid is about 12 mg. 80 p.c. of the human requirement of nicotinic acid is synthesized in the intestinal track by the bacterial flora. The deficiency of B_6= Pyridoxin provokes nervousness, insomnia, irritability and muscular rigidity. Pyridoxine is essential for the metabolism of glutamic acid which is present in considerable amount in the brain. The pituitary and the ovaries are affected by the deficiency of the pyridoxine. The ovarian glands are very sensitive to the deficiencies of B-complex. Wheat germ oil 25,000 units, corn oil 20,000 units, egg yolk, peanut and rice bran oil 25,000 units per 100 gm. B_{12}=Folic acid is found in meat, fish, eggs, milk. Folic acid is needed for maintenance of normal erythrocytes. In its deficiency in the regimen for a long time, anemia, glossitis with very sore tongue and paresthetic burning, pricking and formication sensation are felt. The absorption of B_{12}=Folic acid is improved if iron is added to it in controlling anemia. When there is severe deficiency of B-complex in the diet, the lips are likely to be dry, scaly, cracked or superficially ulcerated and leukoplakia sometime appears; inside the mouth, in the throat, esophagus, similar changes take place. The function of C=Ascorbic acid is the building power of the cells. With its inadequacy, gums become soft, spongy and bleeding. The skin bruises easily. Resistance to infection is lowered. The skin undergoes the same sequence of discoloration as in by bruise, beginning with black and blue, changing through reddish green to green, and finally yellow, fading out later into the normal colour. It is found richly in cevitamic acid (synthetic Vitamin C), Phyllanthus emblica (āmlakhi), citrates, green peppers, tomatoes, mangoes, cabbages. Its daily requirement is about 30 mg. Deficiencies of Ascorbic acid or Pantothenic acid in the diet reduce the hormonal secretions of adrenal cortex whose atrophy is gradually brought about thereby. The deficiency of $D_{1,2,3}$=Calciferol, developed through exposure to sunlight, found in fish oil, egg yolk, causes rickets and osteomalacia. D regulates calcium and phosphorus metabolism whose deficiency causes rickets, the sun activating the steroids of the skin produces D=ergosterol. E=alpha, beta, gamma toco-pherol is aphrodisiac, concerned with fat metabolism and storage of fats. It is beneficial to the eye. Its deficiency causes sterility in both sexes, abortion in pregnant women and muscular dystrophy. Rice germ oil 50 mg; green leaves 5 mg; also found in fresh meat, and banana. Anti-ulcer factor U is found in cabbage juice, a wide variety of green vegetables, milk and raw egg. Malnutrition may exist in spite of sufficient balanced diet. The intestine is a hollow tube in which the food must be digested, and from which nutrients must be assimilated, and the assimilated nutrients have to be metabolized. So in spite of sufficient balanced diet, malnutrition may arise by gastro-intestinal disorders, disorders of metabolism by infections and endocrinal imbalance.

Hypervitaminosis of A leads to the loss of appetite, malaise, sparceness of hair on the head, increment of the liver, tenderness of long bones and tendency to fracture of bones. Excessive doses of D increases the calcium level in the blood, particularly of the kidney. The ensuing renal insufficiency is associated with diarrhea, anorexia, frequent urination and lassitude. Excentration of Riboflabin B_2 in the liver is increased in Aneurine B_1 deficiency. Aneurine in heavy doses causes depletion of Pyridoxine B_8, giving rise to herpes zoster and symptoms of hyperthyroidism like nervousness, palpitation and sweating. Choline, found in egg yolk, grains and brain, is essential as a precursor of acetocholine and as a source of ethyl groups for its synthesis of aminoacids. It is a lipotropic agent. Choline deficiency is associated with fatty liver, poor growth and renal lesions. Biotin is found in the liver, egg yolk, kidney and yeast. Raw egg white containing protein—avidin—combined with biotin transforms into an indigestible complex. Biotin deficiency produced in human volunteers by feeding them with large amounts of raw egg white results in dermititis, nausea, depression, muscular pain and large increase in serum cholesterol. Heating of egg white denatures avidin, destroying its biotin-complexing ability. Under normal condition biotin is synthesized by intestinal bacteria. Most diets contain 25-50 mg of biotin per day, 2 to 5 times as much as excreted in the urine. The yeast Candida utilis is a good source of thiamin, riboflavin, pyridoxine, choline, inositol, pantothenic, nicotinic, folic, and p-aminobenzoic acids.[14]

Padminī has the roundish face like the full moon, fine nose like the sesame flower, large open gazell eyes (*kuraṅga sāva nayanā*), high full breasts (pinottuñga kuca,) soft skin like the petals of Acasia sirissa (*sirisa mṛidulā*), is shy but proud (lajjāvatī māninī), has luxuriant long hair, is slender (*tanvī*=*Gk* tanaos=*L* tenuis=*Russ* tonki=*Ger* dunn) with fine neck, has red lips (raktausthi: *ostha*=*Pahl* aostra=*OSlav* usta), gets quick orgasm (suratādyā) with secretion smelling like the bursting lotus.[15]

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5. The most important single source of genital stimulation involves activation of sensory receptors in the glanspenis (liṅgamaṇi). Sensations derived from gentle friction exerted upon the glans as it rubs against most of the

vaginal cushion are basic to the occurrence of ejaculating orgasm. Priapism (liṅgodreka)—prolonged erection of the penis—often appears in epilepsy (apasmara), tuberculosis, and in inflammation of the kidneys. Priapistic stiffening may be caused by insect bites, sometimes in acute prostatic infection, polyp's (polypoid=*vahupada*) growth in the urethra as well as tumor or thrombosis of corpora cavernosa, in spinalcord diseases or injury, chronic myelogenous leukemia. The relative enlarging of the member which is often observed several hours after death is caused by the stoppage of the blood.

Leucorrhea (*pradara*)—the flux of a whitish mucous viscid fluid—may be caused by the irritation of menstrual congestion, gonococcal and other non-specific endocervicitis, erosion of the cervix, trichomonal and monilial infection of the vagina, cervical laceration with ectropion, non-malignant ulceration of the cervix such as tuberculosis or syphilis, cervical and uterine polipi and malignant growths. Chronic inflammation of the cervix is common in adult women, which when severe develops into leucorrhea. Trichomonas vaginalis and Candida albican are both immune to the vaginal acid barrier in which other pathogenic germs do not grow. The glycogen content of the vagina rather favours the growth of Candida albicans. If on separating the labia minora, a thin yellow discharge runs over the fourchette which causes pruritus and excorciation, monilial infection may be inferred. The malodorous discharge is not due to the protozoon but to the secondary decomposition of saprophytes. A morning and evening pessary of stovarsol or carbosone should be inserted for about 8 weeks though the evidence of the infection disappears. In the infection of Candida albican, the vulva shows a red patch of variable size, but often extending back around the anus. The labia minora are flushed and the skin is edematous, and pruritus is intense. This is relieved if mycostalin vaginal tablets, each containing 100,000 units of mycostalin in lactose base is inserted into the vagina for about 15 days consecutively.

6. *Administering testosterone to men* having intact testicular function (even when 2 to 3 times the daily requirements are given) causes very little change in psyche, libido, potency, nitrogen or mineral balance. It does however increase in estrogen and 17-ketosteroid excretion, diminishes gonadotropin excretion to zero, causes spermatogenesis to a complete halt and may cause atrophy and hyalinization of the seminiferous tubular membranes. The Leydig cells disappear. If daily testosterone injections are discontinued after 4 to 8 weeks, full recovery occurs within the next 18 months.

When large amounts of estrogen are administered to men with normal testicular function, there is loss of libido and potentia, but no negative nitrogen or minerals balance. The urinary 17-ketosteroids drop and gonadotropin disappears from the urine. Gynecomastia occurs. The secondary sex characteristics gradually disappear and the accessory sex structures show gradual regression. The testis undergoes complete atrophy. Recovery occurs, if the duration of administering of estrogen is short. The administration of estrogen to the male inhibits testicular activity, suppresses sex drive, causes gynecomastia, cures carcinoma of the prostate, acne vulgaris, satyriasis and peptic ulcers. Women seldom suffer from peptic ulcer during their reproductive period; they get occasionally after menopause.

Androgen, if administered to females, depresses the activity of all tissues of genital tract and induces atrophy and secretory quiescence of the living epithelia. The breasts shrink, cervical secretion dries up and menstruation ceases. The ovarian cycle is arrested, and ovulation and menstruation cease, partly

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as a direct effect and partly due to the inhibiting action of androgen on the anterior pituitary. Androgens are normally responsible for certain female sex characters—notably the axillary and pubic hair, axillary sweating and the activity of the apocrine glands. In large amounts they suppress the female curves and outlook and impose virilistic characteristic as hirsutes on the face, limb and trunk, enlargement of the clitoris, deepening of the voice by elongation of the vocal cords, coarse skin and muscles. But they increase heterosexual libido in the female. Pre-ovulationary stages last from 1 to 15 days in menstrual cycles of 28 days; endometrial stages of desquamation 1 to 4 days; regeneration 3 to 5 days; proliferation 5 to 15 days; ovulation on 14th to 15th day; post ovulationary stages from 15th to 28th day; functional activity of corpus luteum 15th to 23rd day, followed by its gradual regression 23rd to 28th day; endometrium undergoes the stages of secretion from 14th to 26th day; premenstrual or ischemic phases from 26th to 28th day.

7. Granulosa cells of the Graafian follicles secrete estradiol into the liquor folliculi where the estradiol is absorbed into the blood stream, and estradiol circulates over the entire body. The circulating estradiol is partially metabolized by the liver to form estrone and estriol after which all these three estrogens and others formed in the process of metabolism produce their local and generalized estrogenic effects. The excess passes through the glomeruli of the kidneys and is excreted into the urine. Estrogen makes the skin velvety, thick and resilient. The estrogenic effect increases the nervous and emotional stimulation of the hypothalamus. Hypothalamus controls appetite, sleep, temperature and water balance of the body. The stimulation of the anterior portion of the hypothalamus—the sleep centre—induces an animal to sleep by inhibiting the wakeful centre of the posterior hypothalamus. The decreased activity in the reticular formation of the lower brain is inductive to sleep due to the inhibitory influences passing to it from different parts of the brain. The source of androgens would seem to be mainly from the zona reticularis of the adrenal cortex and the thecal cells surrounding the Graafian follicles.

8. *The menstrual blood* does not leave the uterus as a continuous stream, but in periodic spurts, presumably under the control of uterine contractions. The discharge amounts to from 25 to 140 cc. Although the menstrual discharge is composed chiefly of blood, it also contains mucus, numerous leucocytes, fragments of uterine mucosa of microscopic size, desquamated vaginal epithelium, and also a large amount of estrogenic substances—arsenic, lecithin and cholestrol. The blood makes up from ½ to ¾ of the discharge and it has a water content of 85.65 p.c., compared with 73 p.c. of the circulating blood. Menstrual discharges in over 50 p.c. of cases fail to clot. It is believed that the blood from the endometrium actually does clot and then undergoes a process of autolysis. The so-called menstrual blood collected in the vagina is not whole blood but the serum which no longer contains thrombin, prothrombin or fibrinogen. Chronic nephritis gives rise to venous congestion and frequently causes excessive menstrual bleeding. In metropathia hemorrhagica due to cystic degeneration of the Graafian follicles and absence of active corpora lutea in the ovaries, follicular estrogen is secreted continuously, unopposed by progesterone; estrogen causes hyperplasia of the endometrium which breaks down, resulting in prolonged continuous uterine hemorrhage.

9. *Vulvo-vaginal secretions.*—The skin covering the labia majora, composed of folds of fat with a connective tissue layer, is rich in hair follicles. The labia

minora have some smooth muscles which stimulate tissues; sebaceous glands are numerous; sudoriferous are few in numbers. The structures bounded by these are kept moist partly by a slight serous secretion, originating as a diffuse oozing from the general surface; partly by the secretion of certain groups of specialized odoriferous glands (Tyson's), scattered here and there about the surface, producing a clear serous fluid; and partly by the mucous secretion of the vulvo-vaginal glands (Bartholin's) which lie on either side of the vaginal introitus. The vaginal secretion is a thin milky fluid derived as a general oozing from the whole surface. The fluid as exuded is clear, but becomes milky in appearance from the presence in it in suspension of numerous desquamated epithelial cells from the vaginal epithelium which like those of the vulva undergo fatty degeneration before they are cast off. Mixed with the milky-white vaginal secretion is the clear transparent mucous secretion, derived from a number of racemose glands embedded in the wall of the cervix. The secretion is more profuse during the ovulation phase, sexual excitement, before and after the menses. A pituitary defect leading to hypo-ovarism may be due to the disease involving the hyothalamus; Froehlich's disease—adipose genital syndrome—is due to a destructive lesion, and there is a characteristic type of obesity, retardation of skeletal growth, insufficient ovarian functioning. Lawrence—Moon—Biedl syndrome is due to congenital defect in addition to adipose-genital disturbance with accompanying retinis pigmentosa, mental deficiency and polydactalisim. Tumefaction of the Bartholin's glands is common in unmarried or continent women in upper twenties, presumably because of lack of emptying of the glands during sexual excitement and consequent stagnation within them. The ducts become blocked and greatly dilated with the characteristic cyst lined with fibrous wall, containing the remnants of the acini filled with glairy fluid.

Dysmenorrhea—Udavarta—has many causes, chief of which are the infection, inflammation, acute anteflexion or hypoplasia of the uterus with excess fibrous tissues, anatomical obstructions to flow, cervical stricture, adeno-myosis or myoma of the uterus, adherent malposition, salpingītis, pelvic congestion either due to constipation, ungratified sexual tumescence, erosion of the cervical mucosa, especially if rendered sensitive by infection or nervous upset of the automatic system; causing the colicky pain in the right side of the hypogastrium or both iliac fossae. Spasmodic dysmenorrhea is not an uncommon result of malfusion and unequal development of the Miilerian ducts when a rudimentary horn causes pain as it does not communicate with the uterine canal. The horn has to be excised, especially when it is the seat of hematometra. Dexedrine 5 mg once or twice daily for 3 days, prior to the onset of the period and if necessary 2 or 3 days longer, removes the discomforts. Relaxin tablets of 6-8 mg can be taken orally every hour for relief. If 10 mgm of oral progestogens-norethynodrel combined with 0.2 mgm of 3-methyl ether of ethinyl estradiol is taken daily for 20 days, starting from the fifth day of the cycle, ovulation is inhibited and menstruation is postponed, so there is no pain; it is used by many women as a contraceptive. A proteolytic extract of the pineapple plant—bromelain—dissolved in warm water, poured into the vagina for 5 to 8 minutes, relieves primary dysmenhorric spasmodic pain. Pregnancy and delivery cure it. Dysmenorrhea usually does not last longer than the age of 30. Vitamin B-complex seems to be necessary to maintain mucous membranes in a healthy condition. When it is restricted or absent from the diet, degenerative changes, including leukoplakia may occur in the mucous tissues. Primary dysmenorrhea

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and sterility are the outstanding symptoms of the congenital obstruction of the conical cervix with pin-pointed os. Aquired dysmenorrhea, secondary sterility and aberration of the menstrual flow are common in obstruction of the cervix. Endo-cervical polyps, pedunculated submucous myomas and interstitial cervical myomas cause obstructions.

10. *Sexual precocity* in a prepubertal male may originate from pineal tumor, a lesion in hypothalamus, a Leydig cell tumor in the testes as well as from an adreno-cortical lesion. Masculinizing development in prepubertal or adult female, that is female virilization may be caused by a lesion in either the adrenal cortex or arrhenoblastoma, Leydig cell tumor, adrenal rest tumors (rare lesion), luteoma and polycystic disease of the ovary. Hypersecretion of estrogen may on occasions cause frigidity. It is usually the case that the women so affected are suffering from mammary and abdominal congestion and from menorrhagia (periods which are sufficiently prolonged and profuse) or metrorrhagia (bleeding between periods) through hyperplastic endometrium, stimulated by follicular hormones, but unrestrained by progesterone in failure of ovulation. The sexual impulse is retained and even exacerbated though amorous pleasure is lacking. Cystic degeneration of the ovaries is often the cause of these disturbances which are characteristic of nymphomania (madanonmāda). Nymphomania results from hyperestrinism without being restrained by progesterone due to its deficient production. As in the case of estrogen, when the concentration of progesterone reaches a high point, the pituitary gland is inhibited and stops producing luteinizing hormone. As a result the corpus luteum begins to die and in its turn stops the production of estrogen and progesterone. With these hormones absent, the rich thick lining of the uterus cannot maintain itself. It begins to degenerate and break down as menstrual blood. Cramps in the lower abdomen just before and during the first day of menstrual flow, subsiding when the flow becomes well-established, are an indication that ovulation has occurred during the preceding cycle.

11. *Menopausal symptoms.*—As the ovarian activity wanes, the anterior pituitary secretes an increasing amount of the follicle-stimulating hormone FSH in an endeavour to stimulate the flagging ovaries and thus causes hot flushes, palpitation, dizziness and insomnia. With the inactivity of the ovarian secretion of the estrogen, the skin becomes dry, thin, though thyroid secretion is increased.

12. *Cholesterol*, a yellowish waxy substance, chemically a crystaline alcohol, is somehow necessary for the formation of neurons, since it accounts for about 2% of the brain's solid weight. As the fatty protein molecules travel in the blood stream, proteins and fats are burnt off, leaving behind cholesterol. Ordinarily the liver synthesizes only enough cholesterol to satisfy the body's needs. The cholesterol is deposited in the intima or inner wall of a coronary artery. As cholesterol piles up, it narrows, irritates and damages the artery, causing calcium deposits and slowing circulation, A clot forms at the site, restricting the flow of the blood to the heart, provoking a heart attack. All natural food fats are—(1) saturated, (2) mono-unsaturated, (3) poly-unsaturated. The degree of saturation depends on the number of hydrogen atoms on the fat molecule. Saturated fats can accommodate no more hydrogens. Mono-unsaturated fats have room for 2 more hydrozens on each molecule. The poly-unsaturated fat molecule has room for at least 4 hydrozens. These three fats have similar caloric value. Saturated fats in meat and dairy product, promote production of

cholesterol too large for the body to excrete. Mono-unsaturated fats (predominant in olive oil and hydrogenated liquid fats on which by the process of hydrogenation hydrogen atoms are forced) have no apparent effect on the blood cholesterol levels. Poly-unsaturated fat, such as those in corn, cotton seed, safflower seed or fish oils on the other hand actually lower cholesterol by increasing the excretion of bile acids. All natural fats are anti-oxidants which prevent their rancidity. When allowed to remain in the food, these anti-oxidants prevent the destruction of carotene, vitamins A, D, E, K and several of B-complex, not only in the food itself, but also in the intestinal tract. Without anti-oxidants, serious losses of these vitamins occur before they can reach the blood. Anti-oxidants are lost when the fats are refined or hydrogenated. A certain amount of fat is necessary to stimulate the production of the bile and the fat-digesting enzyme—lipase. Only when fat enters the intestine, does the gall-bladder empty itself vigorously. Without fats, too little bile is formed, and the gall bladder holds its reserve bile. This faulty emptying may be a factor contributing to the formation of gall-stone. If a fat free diet continues for long, the gall-bladder eventually attrophies. Vitamins A,D,E and K as they occur naturally cannot be absorbed from the intestine into the blood without the presence of fat and the consequent production of the bile. Deficiencies of these vitamins can be caused either by fat-free diets or by bile failing to reach the intestine. Fatty acids cannot pass into the blood without first combining with bile salts. The liver of all animals appears to be the richest source of the anti-stress vitamin; kidney, soyabean flour and brewer's yeast contain the same. Lecithin, the source of B-cholin and B-insitol, is supplied by the fat of egg-yolk, liver and brain. Lack of thyroxine increases the quantity of blood lipids. The increase of blood lipids is usually associated with arteriosclerosis.

12A. 17-kelosterioids such as sex hormones—estrone, corticosterone, iso-androsterone, dehydro-androsterone, androsterone—are excreted in the urine. The excretion of 17-ketosteriods is increased in certain adrenal cortical tumors, having ketone group in position 13.

Sweat Glands.—There are more than 2 million sweat glands on human skin. Most of these are eccrine glands, found all over the body, especially common on the palms and soles where there are no hairs, secreting 1 to 2 litres of fluids daily, containing 1% salt, lactic acid, small amount of amonia, urea, glucose and some metabolic wastes. The chief function of the sweat is to cool the body by evaporation and to form a protective acid coat against bacterial, fungus and virus growths. Apocrene glands are abundant in the axilla, around the mammary gland, in the perineal region and in the external ear canal. Women have twice as many of these glands as men. Their ducts are wider and more crooked than eccrine gland ducts, and usually open near the hair follicle. Their fatty milky secretion dries on the skin like a solid plastic as a sexual stimulant, increasing during the menses, and diminishing afterwards. In hot weather, not only excess of sodium chloride, but all vitamins, especially the water soluble vitamins such as ascorbic acid C, riboflavin B_2, thiamin B_1, nicotinic acid, pyridoxin B_6, paraaminobenzoic acid, inositol, choline too, are drained away with the perspiration.

13. *The time of ovulation* may be found out by the recovery of the ova or early embryo from the Fallopian tubes and the uterus, the microscopic examination of the ovary by accurate estimation of the age of the corpus lutea. The exact day of fertilization in controlled matings and artificial insemination may

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be found out by actual observation with paviscope through an incision into the posterior fornix of the vagina. The number of primordial follicles in each of the ovaries may be estimated at birth 143,000; in third year 70,000; in seventh year 48,000; in eighth year 23,000; in ninth year 18,000; in tenth year 10,500; of these during a woman's life time some 300 actually ovulate. Usually in a healthy adolescent woman, under the stimulus of FSH, a ripe ovum bursts forth from each of the ovaries every alternate month. It is visible to the naked eye as a pin point; but it takes 1000 spermatozoa to fill the space of the ovum. The amounts of estrogen in the blood and the urine show 2 peaks—one at the end of ovulation and the other about one week before menstruation. The placenta also produces both estrogen and progesterone. The follicular maturation takes place in the first half of the menstrual cycle with the secretion of estrogen and a little of progesterone at the time of advanced maturation, followed by the formation of corpus luteum after ovulation with the secretion of progesterone and slightly of estrogen. The levels of the two hormones show regular cyclic fluctuation. The ovulation is induced in cat, rabbit and ferret by copulation.

Anorexia Nervosa, usually due to nervous depression by mental shocks and psychic frustration complex, appears during adolescence and reproductive life. In it the breasts do not atrophy; there is no marked loss of axillary or pubic hair. The face, trunk, back and the limbs become covered with pale soft downy hair. 17-ketosteroids are not appreciably diminished. It is marked by loss of appetite, extreme emaciation, amenorrhea, achlohydria, flatulent dyspepsia, lowering of pulse rate and blood pressure, but with lively expression and restless activity through lesions in the lateral hypothalamic area.

Obesity results from defective metabolism. Obese people are unable to metabolize carbohydrates completely so that it is oxidized only as far as pyruvic acid. Pyruvic acid inhibits fat exidation and stimulates fat synthesis. So with high protein and fat, but low carbohydrate diet, not only nutritional balance is maintained, but fat and weight reduction takes places, as the restricted carbohydrate intake leads to the mobilization of body fat even in the presence of large amounts of dietary fats. Overfeeding and obesity may be induced by the medial lesions of the hypothalamus. Obesity (medādhikya) may be induced by damaging or destroying hypothalamus center, excessive secretion of pituitary ACTH, injecting long lasting insulin in combination with a substance that depresses thyroid activity. ACTH stimulates adrenal glands, produces pigmentation and increases the amount of red cells in the blood.

Banana contains serotonin and norepinephrine=noradrenalin. Serotonin is known to inhibit gastric secretion and to stimulate the smooth muscles of the intestine. Norepinephrine is the most powerful in wide use to-day in the treatment of cardiovascular collapse. Each banana pulp yields one quarter of a milligram of norepinephrine and 4 milligrams of serotonin. The peel contains more than 7 milligrams of norepinephrine and 4 mlg of serotonin. Oral doses as low as 20 mlg of Norethindrone given daily as late as 7 days after ovulation delays the menstrual cycle to relieve painful menstruation, to prevent habitual abortion and allows women freedom from menses when it is undesirable, to help rebuild and strengthen the hemoglobin supply. Schizophrenia arises from a deficiency of serotonin in the brain.

Female mosquitoes are equipped with a penetrating device that penetrates the skin and draws the blood. Males of the species possess no such equipment. Thus the females of the species lives an average of nine days while the male, alloted with the amount at birth, just survives the adult stage of a few hours, just long enough to participate in the cycle of reproduction. The female mosquitoes bite humans to obtain two chemicals that are produced by banana—serotonin and norepinephrine, the life blood of blood-sucking insects, fleas and body lice.

The stimulus for gonadal function is the gonadotropic hormone of the anterior pituitary gland which in turn is controlled by the amount of estrogen and androgen in the circulation. An overproduction from the gonads or the adrenal cortex or an excess of exogenous hormone depresses the anterior pituitary secretion. Under most circumstances the gonadotropins appear to be secreted at a constant rate, and the variations noted in the blood and urine may be ascribed to variation in the activity of the gonads. Gonads cause pelvic mascular spasms and thrusts. Moderate amounts of gonadotropin appear in the urine of normal men and women; but when either germinal or hormonal function declines, less is utilized and a far greater amount appears in the urine. For example, complete cessation of both germinal and hormonal function in men, as after castration, results in 300 fold rise in the urinary excretion of gonadotropins. Large amounts of anterior pituitary gonadotropic hormones are found in the blood of women with complete absence of ovarian functioning. But no gonadotropin is found where there is dysfunction of the anterior pituitary.

Kidney.—Four things may happen to disturb kidney functioning. (1) The glomerulus can be damaged so that it fails to filter properly. (2) Tubules from injury or disturbed functioning may fail to absorb essential chemicals and water. (3) Changes in small arteries due to blood vessel disease and high blood pressure can cause changes in kidney functions. (4) Obstruction by stones or other interference with the free flow of the urine may cause a back up that stops kidney functionings and in time produce its degeneration and destruction. 2½ million microscopic renal filters withdraw about 220 liters of fluid and 2½ kg of solids from the blood each 24 hours. 61542 m (about 55 km) of little tubes or tubules reabsorp more than 99 p.c. of this fluid and most of the solids and put them back into the blood stream. From the collecting tubules the remaining fluid urine passes through larger and larger branches of tree-like set of tubes to empty into a collecting space within the kidney, and the 220 litres of fluids and 2 kg of solids are now 1 to 2 liters of fluids, containing a couple of tea spoonful of salt, some uria and traces of a few other chemicals. The greatest portion of urinary estrogen in males is contributed by secretion of Leydig cells. Some is contributed by the metabolic conversion of androgen to estrogen and a small amount from the adrenal cortex. The urine of men over 50 years of age contains only 1/7 to 1/15 as much male hormone derivatives as of other individuals between the age of 21-29. Husbands under 20 years of age get about 4.8 orgasms per week; men in fifteens only 1.8 per week. Men however retain their erectal potency about 95% at the age of 30, 90% at 40, 85% at 50, 80% at 60, 75% at 70, 25% at 80 in USA. Administered in moderate amounts to male dogs alcohol raises the threshold of the erectile and ejaculate reflexes. Larger doses completely prevent any sexual arousal.

The flow of the urine may be obstructed in the urethra by a pin-point meatus, atresia, urethrocele, strictures, calculus and tumor. In the bladder contracture of the neck, prostatic hypertrophy, neoplasm or calculus. The ureter (gāvini) may be the site of stenosis, atony, strictures, kinks, tumors, angulation or stones. The kidney may have aberrant renal vessels, stones, tumors or arterial aneurism to block the flow of the urine. An infected cervix is often associated with inflammatory disturbances of the urinary tract.

Aldosteroism is caused by overfunctioning of zona glomerulosa of the adrenal cortex, involving mineralo-corticoids. The potency of aldesterone is 30 times greater than that of desoxycorticosterone. As in the case of desoxysterone, aldosterone promotes to a marked degree the sodium and water retention by the renal proximal convoluted tubules with corresponding loss of potassium. This retention of sodium and excretion of potassium leads to an exchange in these electrolytes, first in the extracellular fluid and then in the intracellular fluid. This in turn leads to water reabsorption which lowers the serum solute concentration, thus inhibiting the further output of aldosterone. At the same time it results in the increase in the volume of extracellular fluid. Aldesterone provides the mechanism by which sodium, potassium and the extracellular fluid are maintained in normal balance. Overfunction of the zona fasciculata will involve glucocorticoids with the clinical picture of Cushing's syndrome with basophilism, secreting gonadotropin as well as adreno-corticosteroid, resulting in increased secretion of androgens in which there is a striking redistribution of fat with the obesity confined to the face (round moon face), neck, trunk; but the limbs remain lean; hirsuitism, sexual dystrophy, vascular hypertension, abdominal stirae and osteoporosis. Overfunction of the zona reticularis leads to undue production of sex hormones with resulting adrenal virilism, the adreno-genital syndrome. Cushing's syndrome is due to basophil adenomas of the pituitory and adrenal cortical tumor and hyperplasia. It is characterized by symmetrical enlargement of the cortex with increased convolutions of the surface. Cushing's syndrome is the expression of an excessive adreno-cortical secretion of 11, 17-oxygenated corticoids, hydrocortisone and cortisone. The renal pressor substance—renin—appears to be contained in the proximal convoluted tubules. If the kidney is injured, an abundant secretion of renin takes place with decrease of anti-renin. With the help of the liver, renin is converted into angiotonin. Angiotonin contracts tiny blood vessels and increases the blood pressure. The maintenance of normal blood pressure depends on the correct balance between the production of the pressure material by the adrenal cortex and its elimination by the kidney so that the hypertension might be the result of adrenal cortical overactivity or of renal failure. Stress factors are held responsile by some for peptic ulcers, asthma (*valaṣa*) and ulcerated colitis. Excessive consumption of sugar in deficiency of protein in the diet is a causitive factor in the development of peptic ulcers. Small quantities of semi-liquid bland nutritious food at the intervals of 2 to 3 hours which causes no stimulation through spices or distension through heavy meals, or rubbing the ulcerated surface by coarse particles of food, or flatulence through fibres or cellulose of pulses, beans or vegetables cure peptic ulcers. Peptic ulcers are often associated with certain non-beta tumors of the pancreas or hyperfunctioning parathyroid tumors, or chronic stimulation of the hypothalamus. Animals deficient in pantothenic acid frequently develop duodenal inflammation and ulcers.

14. Vitamin V is found in some vegetable oils; the sufficient quantity of V arrests cancerous growths, if not cures them. Fresh citrus juices supply vitamin P or rutin which prevents vitamin C from being destroyed in the body by oxygen ; and if ¼ teaspoon of calcium salt is added, the calcium helps

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to prevent any morbid substances from entering the cells. Tea tannins have vitamin P-activity. P is necessary for the maintenance of the capillary blood vessels in normal activity. Inositol relieves constipation. Para-aminobenzoic acid is known as anti-grey hair vitamin.

15 A love letter of Egypt's Twelfth Dynasty describes *an ancient Egyptian beauty:* "When in the house I lie all day in pains that will not pass away, neighbours come and go. Ah if my darling to me came, the doctors she would put to shame. She understands my woe. Sweet and healing is my beloved. Black are her tresses as blackness of the night, black as the wine grape are the clusters of her (curly) hair. Fair are her arms in the softly swaying dance, fair is her bosom's rounded swell. Slim and slender is my willowy beauty, languorous with passionate urge. Rosy are her cheeks as the jasper's ruddy hue, rosy as the henna which stains her slender hands. Hearts of men are as water at her glance. Fairer is her beauty than mortal tongue can tell."

Iranian beauty must be tall and erect like the cypress with ellipsoid white rosy face, very small mouth, languishing bright wine coloured eyes with dark eye lashes like the arched bow of the eyebrow, dimples on the cheeks, some soft hairs appearing round the ears and soft down on the lips.

The Arab beauty is slender like the cane among the plants, elegant like the twig of the willow. Her face is like pearls set in coral. Her cheeks are oval. Her eyes are brilliantly deep-black, large and almond-shaped with long silken lashes. The nose is straight and delicate like the sword blade. Her breasts are like two promegranates. The waist is slender. The hips are wide and large. The feet and hands are small with tapering fingers. Her pubes is domed like the tent, and her vagina is narrow, warm and dry, emitting voluptuous odor. The pubic hair grows luxuriantly from mons veneris to her thigh joints. The tresses of her glossy black hair from her head fall upto her knees.

The Greek beauty is tall with supple body. Her face is oval, her red lips thin, her cheeks are white, mixed with the purple of the rose. Her eyes are large and bright, nose straight and thin and eyebrows (*bhrū*=*Ƶ* brovat=*Gk* ophrys=*Slav* bruvi=*Celt* bri=*Russ* brove=*OHG* prawa=*Pers* abhru =*Gael* bra) slightly arched. Her swelling symmetrical globular breasts were in contrast to her slender waist. Her buttocks (*śroṇi*=*Ƶ* sraoni=*L* cluinis=*Sl* szlauni=*Celt* clun) are round and protruding and thighs plump and supple.

Ideals of female beauty differ in various society. But usually relatively more youthfulness in females is preferred. Chenchu, Tongas prefer slim bodybuild, while the Arabs, Thonga desire plump body build as beauty traits in females. Fat women are preferred by men with obvious pride as fat vulva and mons veneris are thought to be much more satisfying sexually than thin women who are summarily dismissed as bony. Bodily hair (keśa=*Lith* kaiste=*O Prus* coysnis) is an undesirable trait and is therefore depilated, although a certain amount of pubic hair is believed to add zest to intercourse. A woman's vulva shall be small and fat while man's penis should be as large as possible. Dahomeans, Marquesans, Venda prefer elongated labia majora, while Easter Islanders choose large clitoris. Alouse, Wogeo select large breasts while Masai and Manus show preference for upright hemispherical breasts. The Masai ideal of female beauty calls for well-built slim body with lightly rounded forms. Limbs should be sufficiently rounded, not to show angularity. The other signs of beauty are: an oval face, white teeth, black gum, light facial complexion, wide thighs (ūru=*Ƶ* vorus=*Gk* euruz=*L* varus, =*Ger* Wade), a deep navel (nābhi=*Ƶ* nabi=*Ger* nabel=*Fr* nombril).

CHAPTER IV

MARRIAGE

Marriage by mutual selection, based on ardent libido for each other, was regarded iridescently celestial=*Gandharva*. In Svayaṃvara the maiden (kanyā=*Z* kanya=*Gk* kainos=*Russ* kuna, kunka in the sense of an adolescent girl) selects as her husband the victor in a contest, either in shooting, riding or intellectual debates. Damayantī selected Nala for his personal beauty, culinary arts and charioteering dexterity. Draupadī chose Arjuna for his ability to shoot an arrow through a ring at a pendulous target. Sāvitrī and Satyavān were mutually attracted to each other. At Vaiśālī and Srāvastī many a woman entered into Debating Halls with the challenging pawn that if she was defeated in arguments by any man, if a householder, she would be his wife, if a monk his disciple (*Khulla Kaliṅga Jātaka* 301). But the importance of eugenics in marriage was not underestimated. When a faultless daughter, well-dressed and decorated with ornaments, is offered by the father to a learned bridegroom of good morals and untarnished heredity, it is called True Marriage=Brahma vivāha, *Manu* 3.27. However if during the period of three years of her post-puberty, her parents did not make any arrangement for her marriage, she was free to select her husband herself, but thereby lost her rights of inheritance from her parents, *Manu* 9.90-92. And during her *rutting* (ṛitu=*Gk* erot, sexual excitement=*Fr* rut=*Lith* ruja) period of estrogenic (*Gk* oistros, maddening sexual desire) upsurge, she had right to mate with any man of her choice (*Matsya* P. Ch. 31; *MBh* 1.82). Marriage is a holy trinity of husband, wife and child in a blessed heaven of home. The conjugal union, the main altar of the marriage ritual, consecrates the married couple with the heavenly glow. They enter into conjugal copulations with divine ecstacy in rapturous adorating spirit, for she becomes a goddess—devī—and her mate a god—*deva*, and she becomes a creatrice—srashtrī, and he a creator—srashtā—of the continuous perpetuating immortal embodiments and evidence of their loving unions. The libidinous union of a loving pair is a heavenly beatitude. "In thy offspring thou art born again; that mortal is thy immortality".—*Āpastambha Dharma Sūtram* 2.9.24.1.[16]

Though the society through marriage gives the married couples unrestricted licence to satisfy their erotic cravings and to gratify their instinctive biotic urges for the promotion of their health and happiness by mutual cooperative physical and psychic adjustments, yet incongruous matings have been decried in Kāma Sūtras—Sex Manuals. The generative organs of males and females have been classified into three kinds. It is entirely a racial characteristic. The Negroes and the Semites have the longest and largest organs. The Alpines and the Mediterraneans the medium. The Japanese and Viet-Namese the shortest and narrowest. A narrow vagina under sexual stimulus can easily distend to accommodate a large penis, but a long penis by its copulatory thrusts may gradually inflame and lacerate the cervical tissues at the end of a short vagina. If the penis (puṁs) is long and vagina is short comparatively, in copulatory penile thrusts the cervical glands may be hurt, inflammed and lacerated, and if the penis is uncircumcized, cervix may get carcimonous growth as the smegma of the penis contains a carcinomous fatty substance. This is the reason why many of the wives in Eur-America are becoming victims of their cervical carcinoma and cancers. Childbearing also often causes tears and lacerations of the cervix which if left unrepaired result in chornic inflammatory condition—cervicitis—leading to cancerous growths. Cancer

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of the cervix is very common among the USA Negresses as the USA Negroes are uncircumcized and very rare among the Jewesses as the Jews are circumcized. It is unknown among the nuns. The inner surface of the foreskin secretes the fatty smegma which is irritating; when it is allowed to accumulate, and it is not scrupulously cleansed by taking regular baths, a chronic inflammation sets in, leading to the cancer of the penis which is common among the American Negroes, the Chinese, Vietnamese who seldom take baths, but rare among the Japanese who are scrupulously clean and take almost daily regular hot baths. Vaginal bleeding which occurs immediately after sexual intercourse or douching is usually a sign of the cancer of the cervix. The bleeding is slight when the tumor is small. For infringement of the vow of chastity, a student had to sacrifice an ass on a crossing of roads to the goddess Nirṛiti (of misfortune) and he had to put on the skin of the sacrificed ass with its hair turned outside; holding a red earthen vessel in his hand he had to go about for one year begging alms and proclaiming his guilt, known as Avakīrṇī Prāyacitta.—*Baudhayāna Dharma Sūtram* 2.1.29-30. Boys and girls who become absorbed in sexual and sensual enjoyments have little time to spare for intellectual activities or spiritual pursuits. The sex drive can become possessive. The pursuits of submissive partners, the novel sensual delights and the gratification of sexual appetite can preoccupy the attention of boys and girls to the exclusion of everything else, thus leading to their gradual deterioration and demoralization.[17]

In the beginning the people consorted with their own *jnāti* (*Gk* gnotoz=*L* co-gnatus=*Goth* knops). In *Rv* 10.10 Yāmi solicits her brother Yama for sexual unions. In *Rv* 10.61.5-9 Prajāpati has union with his daughter Ushā. In *Rv* X.162.5 conception by brother (bhrātā) is mentioned. In *Av* 8.6.7 father and daughter, brother and sister incest is indicated. Then the unions took place with the members of the same gotra (*M Pers* gohr=*N Pers* gohar=*Arab* jauhar=*Sogd* gos=*Medieval L* cotarius=*Gaelic* coitear =*MFr* cotier=*ME* cottar), an enclosure within which the cottars of a tenure of land for farming and grazing of cattle clubbed together. As this led to undesirable rivalry and friction within the same group, cross-cousin marriage, exchange of partners, and capture and purchase of females, exogamy thus replaced gradually endogamy.

The daughter was called *duhitā*=*Z* dughdhar=*Gk* thygater=*Russ* doche=*Goth* dauhtor=*Ger* tochter, for she used to milk cows at home. She also spinned urṇa=*Z* varna=*L* lano=*Lith* viona=the woolen thread, wove (*Rv* 2.3.6) and sew with needle (*Rv* 2.32.4) *vasa*, *pesas* (dress), *drāpi*=*Pahl* drap=*Lith* drapanas=*Gk* depo=*Serb* dropati—close fitting vests, *adhi-vāsa*=scarf, *śāmulya*=*nīvī*—under-garment, sometimes brocaded (*hiraṇya-pesa Rv* 8.31.8) and decorated with golden eardrops (*hiraṇya karṇa*=*karṇa sovanā Rv* 8.78.3) and necklace (*nikṣa Rv* 5.53.13), used to hurry up with amorous inclination (*smaya mānaso*) to social gatherings (*gachchanti samanam na yoshāh Rv* x. 168.2. Samana =Samāja of *Kautilya's* Arthasāstra 2.25 where feasting with meat and wines was customary for 4 days=*Samajjā* of 14th edict of Asoka, entertained with dancing, singing, music, feasting with meat and drinks) where "many women try to select rich men as their husbands; but a refined well-dressed woman chooses a husband from her friends".—*Rv* x. 17.12. The mind of woman brooks no discipline, and her intellect has little weight—*Strīyā aśāsyam manah*; *uto aho kratum raghum.*—*Rv* 8.33.17. Her brother (*śyālā*=*Nordic* svilar=*HGer* sweher=*Goth* swaihr=*Ger* schwager, schwaher =*Russ* surin) gives her and her husband a couch (*talpa Rv* x. 55.8; *Av* 14.2.3) with pillow (*upaharanam*) on which the husband and the wife are to repose, relax and sleep together with a chest (*kośa Rv* x, 85.7). Husband (*pati*=*Z* paiti=*Gk* posis=*Sl* pats=*Teut* fath) to wife: "Spread out

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thy thighs where within I can eagerly thrust my *śepam*=*L* cippus."—*Rv* x, 85.35. Wife (*patni*=*Gk* potnia=*Sl* pati) to the husband: "Mount thou the thighs with the support with thy hands and embrace thy wife with ardent libido so that enjoyingly we can have progeny".—*Av* 14.2.39. Husband to wife: "Give thou away thy *śāmulyam* (under-garment) for like a living witchcraft, it may attack both the wife and her husband; it looks indecent (*aśrīra*=*aślīlo* *Av* 14.1.27), glissening in that evil way when the husband wipes out his virile member (of defloration and semen stain) with the wife's garment".—*Rv* x. 85.29-30.[18]

A female who neither goes naked (nagnā=*Z* magna=*Sogd* bg nak=*Osset* bognok=*Gk* gymnos=*L* nudus=*Lith* nuagos=*O Slav* naga=*O Ir* nocht=*Hitt* nekumont; has reached the age of puberty) nor is temporarily unclean (in her menses) is paradise (*amṛitam*), procuring bliss in this life and heaven after death through her children".—*Vasiṣṭa* DS5.1. "A woman is not defiled by a lover. A wife, whether she has voluntarily left the house with a lover, has been seduced, abducted, suffered criminal force or fallen into the hands of thieves, must not be abandoned. For month by month (māsa=*Z* mah=*Lith* menesis=*L* mensis=*Gk* men=*Gael* mias=*Fr* mois), their temporary uncleanliness (menses) removes their sins. Women belong first to three gods—Soma (the moon), *Gandharva* (libido) and *Agni* (*estrus*=*heat*). *Soma* gives them cleanliness (through the menstrual cycles), the *Gandharva* gives them (through libido) their melodious voice (*rāga*=*Fr* rouge=*L* ruber=*Gk* erythros, allied to *Skt* rudhira, as *rāga* means color, passion, ardor through turgescent ruddy coloring) and passionate fire destroys all ills. So women are pure, especially during dalliance," *Vasiṣṭa* DS23.17.9. The vagina is defended during sexual life by high acidity (PH about 4-5) in which septic germs cannot exist; the acidity is dependent on the activity of Doederlein's bacillus that flourishes in the presence of vaginal glycogen which is mobilized under the stimulation of estrogen secretion. During high estrogen production, the sequence is intensified. A wooden rod (*araṇi*=penis symbol) was twisted rapidly in a wooden cavity—*ādhāra*—vulva symbol—to engender by friction fire —Agni=coition symbol. "Australian groom may hit his new wife with a firebrand. A firestick may be twisted to represent marital unity".—*Australian Encyclopaedia, Vol.* 1. *p.* 20.[19]

Savitrī,[20] Puraṃdhi, Sūnṛtitā (Joy) and Dhiṣaṇā (Wealth) are goddesses of riches and abundance like Ƶ Pārendi, goddess of plenty and riches for which they are invoked in marriage ceremony (*Rv* 10.85.36). Bhaga (=Ƶ Bagha=*SI* Bagu=*Lith* Bagotas=*Gk* Bogaios), Puṣan (*Gk* Pan=*Rom* Faunus), Aryaman help the bridegroom to secure the bride *Rv* x. 85.37. Ƶ Airyman, the healer of diseases and bestower of saoko=sukha, the pleasure, *Fargard* 12.3.23=*Teut* Irmin. Aramati *Rv* 10.92.5=Ƶ Armaiti=*Armenian* Armat (mother erth) is the Earth which is fertilized by Parganya= thunderous rain=*Goth* Fairguni=*Lith* Perkunas=*Arm* Erkin (heaven). *Varuṇa* (Ƶ Varan=*Gk* Uranos=Armenian Vran=*Khātti* Uru-w-na=*Mit* Uruvna), the mighty regulator of Rita—self restraint and discipline—made the maidenhood and virginity inviolable; Soma infused the youthful virgin (agru) with *rasa,* the internal sexually exciting secretion of estrogen. Agni—ovulation— animated her with sex-energy. "A youthful daughter who has observed Bramacārya (received education with discipline, self restraint and sexual continence) should be married to a bride-groom who is learned like her."— *Yajurveda* 8.1. "The daughter (duhitṛi; duha=to milk) is milking the cows and making butter. The joyous maiden is beheld where the butter flows (riyate ghṛitam, *Rv* 1.135.7". Pāṇigṛīhitā is the title of a legally wedded (=*vadhu*=Ƶ vadra=*Lith* vedu) wife with ceremonies before fire (agni=*Hit* agnish=*Phryg* agnis=*L* ignis=*Lith* ugnis) with

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joyous shouts of *ululih*=*L* ululare=*Lith* ululo=*Gk* ololyso. Virgin (agru=*Z* agruo, aghru=*L* virgo=*Gk* nebros=*Fr* vierge=*Lith* agruh=*N* *Pers* grar) after marriage was called *kumārī bhāryā* (*OHG* vrouwe=*Ger* frau=*L* fero=*Gk* phero), and her husband kumarīpati=ananya purvikā. Old maid=vriddha-kumārī, jarat-kumārī. A marriageable maiden was called *vāryā*, one to be woed freely without restriction=*aniruddhā*; when engaged called vṛityā. One who chooses her own husband, patimvarā; bride=jāni, janī(*Z* jeni=*Gk* gyne=*Slav* zena=*Russ* jena=*Pers* *z*enānā) and bridal maids in attendance, janytrī. Newly married wife—*sumaṅgalī*, *navoḍā*=*Gk* neos=*Lith* naujus=*Russ* novuii=*L* nuus=*It* nuora. Jāyā is the married wife with children (*Pāṇini* 6.2.19).[21]

Education was compulsory. The Brahmana boy in his eighth year, Kshatriya boy in his 11th year, Vaiśya boy in his 12th year had to go to a residential school to live therein with the teacher for 12 years. Otherwise the whole family was socially ostracized. For girls, it might have been 10 years (Daśa vārshikam brahmacāryam kumarīnām dvādasa vārshikamva).—*Kathaka Grihya Sūtram* 9.2. "By Vedic scholarship with sensual abstinence, a maiden obtains a youthful husband (Brahmacāryena kanyā yuvanam vindate patim)."—*Av* XI. 5.18. In mathematics decimal uses were known. Eka 1, daśam 10, śata 100, sahasra 1000, ayuta 10,000, niyuta 100,000, pravita 1000,000, arbuda 10 million, nyarbuda 100 m, samudra 1000 m, mudhya 10,000 m, padma 100,000 m, anta 1 mm, parārodha 10 mm.—*Apastambha Śrauta Sūtram* 16. 31. 1. In Roman empire born slave (verna), male slave (servus) and female slave (serva) after manumission were called libertini (freedman) and libertina (freedwoman). They enjoyed many rights and privileges. It was almost like a new birth (dvija),[22] Indian slaves (Śūdras) like the Roman servus had no rights unless they got the status of twice born=manumitted.

"Wife=jāyā is the true comrade—sakhā".—*Ait Br* 7.3.13. "Wife is the ornament of the home—nay herself makes the home"—jāyed astam sedu yonis tad.—*Rv* 3.53.4. "May Visvadevās and Apas unite our hearts; may Mātarisvan, Dhātai and Deṣtrī bind us together".—*Rv* x. 85.47. "Wife makes home for her husband and makes it comfortable for him. She gives him progeny and prosperity by economic domestic management. The husband is her life and she keeps a holy troth with him. The wife is the better half of her husband and is his best friend. The wife is the root of the three objects—*dharma* (morality), *artha* (wealth) and *kāma* (libidinous desires) of her husband".—*MBh* 1.74. "If a man and a woman that yearn for each other reach their goal, then it is like ambrosia; but if the lover cannot reach the goal of his desires, then it is a misfortune like a poison plant".—*MBh* 12.320. "The dearest (priyā) friend, the essence of all kinship, the fulfilment of all desires, a valuable treasure, the very life itself, all this is the husband to the wife, and the wife to the husband".—*Mālatī Mādhava* 6.18. "A wife is like minister (good adviser) to her husband in all his enterprises, a friend in enjoyments, a mother in affection, a courtesan while in bed".—*Garuḍa Purāṇam* Ch. 64. Arjuna conquered the Seven Ganas of Utsava Samketa.—*MBh* 2.26.6. The commentator Nilakānta states that among the Utsava Samketas, mutual love is sufficient for sexual engagement=utsava samketaṁ strī-pumsayoh paraspara pritireva sameketa; natu dampatya vyāvasthā—marriage does not exist among them. *OHG* Fria=*ON* Frigg=*Ger* froh.

"Lost learning comes back; when the family is lost, all is lost; even a horse becomes esteemable on account of its pedigree. Therefore a *vara* (*Ger* Wahler=*L* fero=*Gk* pher) should marry a wife, descended from an untarnished (*anavadya*) family".—*Vasiṣṭha DS* 1.38. "Wealth, beauty, learning, intelligence and family are to be considered in contracting marriage; the consideration of wealth may be waved in favor of beauty; that of beauty in favor of learning; that of learning in favor of intelligence; and the marriage has to be contracted in favor of intelligence and family (Pañca vivāha kāranāni bhavanti—vittam, rūpam, vidyā, prajñā, vāndhavaiti; ekālābhe vittam visrijet; dvitiyālābhe rūpam; tritiyalābhe vidyām; prājñāyā vāndhave itica vivāhaca."—*Mānava Gṛhya Sūtram* 1.3.[20]

If one desires he should generate a learned, eloquent councillor son, enjoying a great longevity, the couple should eat ox (ukshan=*Ger* ochs=*Lith* auroch) meat (*māmsa*=*O Pers* mensa=*L* mensa=*Goth* mimz=*Lith* miesa =*O Slav* meso), cooked in water with butter.—Brihat Ār Up 6.4.18. "If at the remarriage of a divorced woman (punarbhu=re-born, rejuvenated), they (husband and wife) offer five rice dishes with goat meat, they shall not be separated".—*Av* 9.5.27.

"No man shall have sexual intercourse with any woman against her will". "When a man has anal connection with a woman (*a-yanau*=sodomy), he shall be punished with first amercement. A man having sexual connection with another man (pederasty) shall also pay the first amercement. When a senseless man has sexual connection with beasts, he shall be fined 12 panas; when he commits the same act with idols of goddesses (daivata-pratimā=pygmalion) he shall be fined thrice as much)".—*Kautilya's Artha Sāstra* 4.12.230; 4.13.234. "The guilt of man who has sexual intercourse with the wife of a friend, a sister, a female belonging to the same family, the wife of a pupil, the wife of the preceptor, a daughter-in-law or with a cow is of first magnitude".—*Gautama Dharma Sūtram* 23.121.

"Woman's generative organs (*upastha*) have been created so that she may be sexually worshipped (strīyam adhaupāsīta); he therefore stretching in the prone (prāñcam), posture inserting completely his membrum virile (as hard as soma-pressing stone—grāvān), will copulate with her" (Sṛiṣtā adha upāstha; tasmāt strīyam adha-upāshīta; sa etam prāñcam grāvānam ātman eva samudapārayattenainām avyasṛijat.—*Bṛihat Āranyaka Up*. 6.4.2). "Her pubes is the (sacrificial) altar, her (pubic) hairs are the ascending smoke, her vulvar lips (tumescent) are the flames. (Coitus) is as intoxicating as *Vājapeya* (soma=Cannabis indica drinking). He who performs copulations expertly receive from women rewards (sukṛita) and their friendly aids. He who performs coitus clumsily rather has to induce women to copulation by presents".—Bṛihat Āranyaka Up. 6.4.3. "He who desires that she (the sexual partner) shows ardor in the coitus should intimately contact (*samdhaya*) and touch (abhimṛiśya) by mouth the vulvar cleft and the pubes (upastha) and then insert (nishthaya) the penis (artham)". Sa yāmicchet kāmeyeta metī tasyāmartham niṣthāya mukhena mukham (*Ger* mund from *mucken*=to mutter) samdhāyoposthamasyā abhimṛśya.—*Bṛ Ārn. Up* 6.4.9." He who desires that pregnancy should not take place (through the coital performance), after inserting the penis, shall suck the mouth by the mouth and thus withholding the breath by inbreathing also withholds the discharge of the semen." *Bṛhat Ār Up* 6.4.10. "He who desires that the coitus should lead to conception, after inserting the penis with intimate contact of the mouths of both with outbreathing shall discharge the semen with simultaneous orgasm of the other into her recepticle".—*Bṛhat Ār Up* 6.4.11.

In inbreeding good and bad qualities are accentuated in the offsprings. In race fusions dynamic energy is infused as there is rich variation of the genes. In 18th dynasty of ancient Egypt, brother and sister marriages were continued without a break for nine generations, yet without any evidence of any undesirable effects. The Ptolemics who ruled Egypt a thousand years later, adopted the same practice, and the famous Cleopatra, who figured in the histories of Julius Cæsar and Mark Antony, was the off-

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spring of six generations of brother-sister marriages. Amongst the Incas of Peru, destroyed by Pizaro at the conquest of that kingdom, the ruler is said to be the descendant of several generations of brother-sister marriages. Parthians practised close-kin marriage without any physical or mental injury. Nahusa married his *pitri-kanyā* (=father's daughter, possibly not uterine, but step-sister) Virajā with whom he had six sons. Uśanas Śukra married his *pitri-kanyā* Go with whom they had 4 sons—Tvastri, Varūtrin, Sanda, Marka. Vyāsa was born of the lovers' union of Parāsara and Matsya maiden Satyavatī. Vyāsa's wife was Araṇī, and their son was Śuka. Śuka married his *pitri-kanyā* Pivari with whom they had 5 sons and a daughter Kirtimatī.—*Harivaṁsa* 28.124.2. Drupada married his sister.—*MBh* 1.167. Satrajit was wedded to his 10 sisters.—*Vāyu* 96.53. Satvata married Satvatī.—*Vāyu* 96.2.6. Sisters (svasāro) wait on the haughty brother (*bhrātā*) like wives (*patnih*) and matrons (janayh).—*Rv* 1.62.10 Virgins (agruvah) with lovely tresses (*keśinīh*) hold him in ardent embraces.—*Rv* 1.140.8. Ye Aśvins brought to Vimadā the comely maid of Purumitra as a bride; you came to the calling of the weakling's dame and granted a noble offspring to the happy wife.—*Rv* 1.117.20. Aśvins gave a son to Vadrimatī (=a woman who has an impotent husband; vadri=impotent), consort of Hiraṇyahasti.—*Rv* 1.116.13. Idhmavaha (Idamenus of Crete), son of Agastya (Ægiestus) had intercourse with his own mother at Gokarṇa, Malabar, —*Skanda P. Brahma Khanda, Setu Māhatya* Ch. 35.

Sapta Padi (7 steps) is an essential part of the marriage ceremony. Saptapadinam *sakhyam* (*Pāniṇi* 5.2.22) or friendship is called *saptapadina*, because it is accomplished through seven steps (sapta pada). In Atharvaveda, Varuṇa is called *Saptapada* friend. *MBh Bana* 260.35; 297.23 repeats the conception of *saptapada* friendship. In Gṛihya Sūtras, the bridegroom makes the bride his comrade by repeating

7 formulas, beginning with *isha* (seeking) *ūrja* (urge=vigor). "For wife is anointed, for the wife is everyone's friend for friendship".—*Taitiriya Saṁhitā* 6.2.9.2. Bridegroom to the bride: "I maintain for thee in my lap, in order to secure progeny, a pleasant firm stone (asma=*Z* asman=*O Pers* asman (heaven)=*Gk* achmon=*Lith* akmno=stone hard penis); mount thou on it; may Savitar (zodiacal light) give thee long life".—*Atharva Veda* 14.1.47. Agni (estrus=libidinous heat and excitement) is milking (developing) *isha* (craving) and *ūrja* (urges=*L* urgere) for saptapadi (comrade=mate)"—*Rv* 8.72.16. "In the first step, (development of sexual) urge; in the second step, passionate ardor; in the third step, enchanting ecstacy (orgasm); in the fourth step, progeny; in the fifth step, rutting (eroticism); in the sixth step (to make you my) comrade; in the seventh step, be ardently attached to me (ekapadī ūrge, dvipadī rāya-rupa-ushāya, tripadī māyā abhāndāya, catushpadī prajabhyayah, pañcapadī ṛitubhuyah; shatpadi sakhā, saptapadī bhabas ā māmānuvratā vratā bhaba)—*Aśvalayana Gṛihya Sūtram* 1.7.19. "This *Asura* dominates other gods; all are really obedient to *Varuṇa's* domination; by the grace of praising him constantly, let me be relieved of evil passions (*Ugrasya manyo*=*Z* Angra manyu=angry mind=Ahriman) —*Av* 1.10.1. Svanta Manyu=*Z* Spenta manyu, *Rv* x, 83.1. *Manyu*=*Z* manyu=*Gk* menos=mind=Pious Thoughts.

It was the custom among the Licchavis that a very pretty girl could not be given in marriage to anyone; she had to remain as the common object of enjoyment (sādhāraṇī) to all Licchavi aristocratic youths. Uppalavannā, a daughter of a banker (śreṣṭhī) was an extremely beautiful maiden. Many influential youths solicited marriage with her. Her father in order to avoid quarrels and animosities among the Licchavis for Uppalavannā, sent her to the Buddhist nunnery. Uppalavannā's maternal cousin Ānanda used to frequent her in Andhavana. When signs of pregnancy became manifest,Uppalvannā was questioned in a Buddhist Council. Uppalavannā said that in spite of her objections and oppositions, Ānanda had forced connection with her. The Council held that an adolescent woman can not be raped without her yielding submission; and conception is facilitated by orgasm. Orgasm can not take place without physical thrills. Inhibition and physical thrills do not go together. But Uppalavannā being not an insensible anthill, but an animated youthful maiden, she is naturally subject to instinctive urges for close union and pleasures with her male friends, and she cannot be blamed. Uppalavannā's lover Ānanda left for her a piece of roasted beef. Uppalavannā sent a part to Buddha. Buddha was not there. In his absence, Uppalavannā wanted Upali, the house-keeper of Buddha, to give Buddha the roasted meat in his dinner. But Upali insisted that as a reward for that service she should show him her *kukshi* (*Lith* kuszys=*Gk* kusas, kteis, kusthos) by removing her *antarvāsa*.—(*Vinaya* 3.204).[23]

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16. Among the Dukawa of Nigeria, it is the regular custom for girls to select their husbands at wrestling matches. Each girl, when she attends the public exhibition of athletic valor, is provided with a small bag of flour. She sprinkles some on the head of the chosen knight, and his father immediately enters into negotiation with her parents. Among the Chukchee, women sometimes choose as their husband the victor in an athletic contest or a running race. Among the Turki and Mongols, the bride race takes place on horse back. Thus amongst the Kirghis, the young woman armed with a formidable whip mounts a fleet horse and is pursued by all young men who make any pretension to her hand. She will be given as a prize to the one who catches her. Similar horse races are held in the celebration of weddings among the Tuareg and it is considered proper that the bridegroom should be prodigal in the display of his intrepidity and adroitness. Among the tribes of Malay Peninsula, the bride elect darts off *au galop* into the forest, followed by her *innamorato*. A chase ensues, during which if the suitor youth falls down or returns unsuccessful, he is met with jeers and merriments of the whole party and the match is broken. The same bride racing is reported of Montrayos, Ulu Langet Sakai, the Orang Sakai of Palang. A defeated suitor is not given a second chance. In Johore the bride is placed in a canoe by herself, supplied with a paddle and set downstream. When she has got a start of one or two reaches, the bridegroom enters a canoe and gives chase. Should he succeed in overtaking her, she is his wife; if he fails, the match is broken off.

17. *Cancer Cells* are the products of mutation. Mutation can be set up by many factors—inherited defective genes, radiation by x or gamma rays, ultraviolet light, many irritant chemicals, physical irritation of tissues, interacting with the invasion by some viruses. Wart is caused by a virus. Prostate cancer is cured if by high doses of testosterone or estrogens, the production of androgens is reduced. Prostatic cancer (karkatikā) elaborates acid phosphatase; this enzyme is further under the influence of androgens. The breast cancer of a woman, usually due to hyperovarian functioning which by metastasis may spread to cervical nodes, lung's cavity, pelvic bones, improves if by high doses of estrogens, the estrogen production is stopped; thiolepe is a helpful ally of surgery. Circumcision and scrupulous cleanliness reduce man's risk of the cancer of the penis, and his wife's risk of the cervical cancer, for the smegma of the penis contains a carcinomous substance. The growth and maintenance of the uterus needs folic acid. The discharge is usually tinged with blood and its color may vary from faintest pink to deep red; and large quantities of gonadotropin are excreted. Properdin, a chemical that occurs naturally in blood, is one of the factors in immunity from cancer. Zymosan, a yeast product, raised from the properdin level, if given in small doses, will increase the resisting power of the body against the cancer. Human cancer will grow in laboratory rats if their skin has been penetrated with radioactive carbon or x'rays. Tar from low temperature of tobacco leaves ranging from 560° to 650° produces few or no cancer. From 800° to 850°C the number of cancer increases sharply. Evidently, the cancer producing agent is the result of high temerature combustion. A natural waxy substance that coats the tobacco-leaves—alphatic hydrocarbons—produces hydrocarbons like Benzpyrene containing fume of gasoline combustion, and this produces cancer. If choline free diet is given to mice, they develop cancer or sarcoma. In the cigarette tar no fewer than 17-hydrocarbon compounds—polyclic group with several carbon rings in the molecule —are found. Of these 3-4 benzufluoranthans and 10-11-benzufluanthans produce cancer when applied on the back of the mice. Lung cancer is increasing among the hard tabacco smokers for a long time. A decrease in collagen, normally found abundantly in the skin, is followed by the gradual disappearance of an essential building block for the protein, called hydroproline, leading to cancerous growth. Cancerous growths are usually associated with weak liver. Cancerons growths can be arrested, if not cured, by the substitution of sufficient quantity of vegetable oils, containing vitamin V for animal fats in the patient's diet.

Some 700 of the known radio-active isotopes are potentially useful. Yet only four—phosphorus-32, cobalt-60, iodine-131, gold-198—are in general medical use. Chlorine 38 and sodium 24 which can concentrate in body fluid are tools for measuring of their fluid contents in case of edema; chlorine-38 appears to be good for treating cancer that has spread through peritoneal cavity as it has a half life of only 37 minutes (that is its radio-activity is reduced to half of its original value within 37 m) ; it does the work and decays before it can spread to other parts of the body which might be damaged of radiation. Manganese-56, a beta and gamma emitter with half life less than 2½ hours, has an affinity for the liver; within 15 minutes after being injected into the blood stream, 40% of this isotope is concentrated into the liver. Virtually 100% of certain compounds of manganese-56 are deposited in the liver within 10 minutes, so can be used in the cancer of the liver. Boron-10 is suited for

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brain tumor. About 10 minutes after injection, the isotope reaches a high concentration in the tumor. Then when it irradiates surrounding cells so they can bombard the tumor cells only without damaging neurons; it disintegrates almost instantly into radio-active lithium-7 and alpha particles. The range of the particles is only the diameter of one cell. Radioactive cobalt acts on tumor tissue like radium; but unlike radium cobalt is very cheap. Iodine is deposited in the thyroid gland. Radio-Iodine-^{131} emits beta rays (electrons) and gamma rays (electromagnetic radiation like x-rays), and has half life of 8 days. Iodine isotope can therefore be effectively used in the cancer of the thyroid. Radio-active chromic phosphate, a compound as chemically inactive as gold, has been found useful in cancer of the prostate by injecting into it directly—like radio-active gold. Both radio-active gold and radio-active chromic phosphate are proving helpful in controlling the accumulation of fluid in the chest or abdominal cavity. This is a fairly frequent and distressing complication of cancer which has spread to the lung covering (pleura), to the liver or to the lining of the abdomen (peritoneum). Radioactive isotope of yttrium-39 has been also found very useful in curbing these accumulations of fluids. Radio-active phosphorus may be used in certain chronic forms of leukemia. Phosphorus is required in large amount by cells that are undergoing division. Polycythemia—the over supply of erythrocytes—may be controlled by radio-active sodium.

Radioactive gold: Au^{196} B-(negative beta particle=negatron), 5.60 days; Au $^{198B-}$2.73 days; Au $^{199B-}$3.2 days. Radio-active carbon C^{10B+} (positive beta particle) 19.1 sec; C$^{11\ B+}$20.1 min; C^{14B-}5568 yrs. Radioactive Iodine: I$^{122\ B+}$3.4 min; I^{123EC} (orbital election capured) 13 hours; I$^{124\ EC}$4.5 days; I$^{133\ B-}$20.5 hours; I$^{135\ B-}$6.68 hours; I$^{137\ B-}$22.0 sec; I^{138B}—5.9 sec; I^{139B-}2·7 second. Radioactive calcium: Ca^{45B-}152 days; Ca^{47B-}4.8 days; Ca^{49B-}8.5 min. Radioactive cobalt: Ca^{55B+}18.2 hours; Co^{61B-}90.0 min; Co^{62B-}13.9 min. Radioactive sodium: Na^{20B+}0358 sec; Na^{21B+}22.8 sec; Na^{31B-}15.06 hrs. Radioactive Iron: Fe^{53B+}8.9 min; Fe^{55EC} 3.0 yrs. Fe^{59B-}45.1 days. Strontium radioactive isotopes; Sr$^{82EC\ B+}$27 days; Sr$^{83EC\ B+}$33 hrs; Sr^{85B-}53 days; Sr^{90B-}19.2 yrs; Sr^{91}9.7 hrs. T horium radioactive isotopes Th 224 ^{A} sec; Th^{225EC} 8 min; Th$^{225\ A}$ 30.9 min; Th$^{229\ A}$ 7340 yrs; Th^{231B-}2565 hrs.

Hot tea drinks, containing a high tannin (in Assam tea 39%) reduces much of the toxicity and virulence of strontium-90. Cosmic rays at the sea level .02; radium in water .04; gamma rays from the ground .06; potassium-40 in body .02; x'rays .010; radium dials of a wrist watch .03; wooden house .01; brick house .04 roentgens. The consumption of a large quantity of milk is also useful to inactivate strontium-90 by its calcium salts. If acromycin combined with thiosulpheric acid is given, strontium-90 may be driven out of the body. Calcium salt tablets are useful.

The splitting of atomic nuclei produces some 200 radio-active products that are quickly sucked up with the troposphere and stratosphere. The most dangerous of the radiation fall-outs are strontium^{90} (emitting beta rays and having half-life of 28 years) which in high doses causes bone cancer and lukemia ; cesium^{137} (emitting both beta and gamma rays with half-life of 27 years) which effects the reproductive organs; iodine^{131} which may cause cancer of the thyroid of children. While the hazards from radio-strontium are mainly somatic (limited to the exposed organs to its penetration), concentrated in bones, strontium is chemically similar to calcium and follows the same course, those of radio-cesium are genetic, affecting the descendants of the exposed individual. The consumption of spinach and tomatoes are useful as they contain oxalic acid which can absorb radioactive substances in the human body.

Uranium has two isotopes of the atomic weight of 235 and 238. Uranium-235 disintegrates much faster than uranium-238, and this is the reason there is 139 times less of it in the earth body. Originally the atom of the two isotopes were present in approximately equal qualities. By computing the time needed for uranium-235 to become 139 times less than uranium-238, the age of the uranium and the earth substance may be calculated between 5000-7000 million years.

Cosmic Rays comprise a very short wave radiation that bombards the earth constantly and is of extremely penetrating power (able to go through 45 cm of solid lead or 58m of water). It is stronger at the poles of the earth than at the equator. It may be of extragalactic origin with interstellar magnetic fields which is proved by observations of showers of secondary particles of $2x10^{19}$ ev, originating from the explosions of novae and super-novae—great flames of energy in our Galaxy or Milky Way. About 2000 km above the earth there is a *radiation belt* with tremendous increase of cosmic rays. Primary particles derive their high energy by a spirally motion about the lines of force of the galactic magnetic fields. Before it enters into earth's atmosphere, it consists mainly of protons with appreciable numbers of ionized nuclei. These primary particles have energies upto 10^{19} ev (electron volts), and on entering in earth's atmosphere have collision with oxygen and nitrogen nuclei, causing the disintegration of the latter into a small number of particles, including neutrons and masons. At about 20 km above the earth, cosmic rays that are most numerous, move to horizontal or vertical paths. From 14570m high, they diminish to a considerable extent. Most of the particles observed in cosmic radiation can be produced artificially in the nuclear reactor, caused by beams of protons or deuterons accelerated to very high energies 10^9 ev in a synchroton. Meson is a sub-atomic particle, heavier than an electron and lighter than a proton. It is a short-lived phenomenon that appears to be a bundle of energy. When a proton or a neutron strikes a small nucleus, most of the energy, apart from that, driven to the meson system, will be carried forward by a few nucleons. These undergo similar collisions and the nuclear cascade growth like that of electron cascade is formed. Each nuclear collision may accordingly be the source either of the charged meson sequence or of an electron cascade or both. In collisions of protons and neutrons, the whole of the energy initially present remain with the colliding particles. The charged pi-meson has a life time of about two hundredths of a millionth of a second; it decays into two particles—neutrino and mu-meson which is of mass roughly three-fourths of its parents pi-meson (pion). Mu-meson has a life time of two millionths of a second; its decay products being an electron and two neutrinos. Neutral pi-meson decays within about a hundred-million millionth of a second into 2 photons which have energy of many magnitude greater than photons encountered in radio-activity. Electrons of great energy in turn lose energy almost solely by emission of further photons. Pi-meson is about 270 times as heavy as an electron. Another family of pi-meson is about 960 times as heavy as an electron. Photons are concerned in electro-magnetic radiation (light radio waves). The principal radio-active isotopes present in the earth are: $Uranium^{238}$, U^{235}, $Thorium^{232}$, $Rubidum^{87}$, which respect-

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ably decay into plumbum Pb^{206}, Pb^{207}, Pb^{208}, strontium^{87} and argon^{40}. Pb^{204} is the non-radiogenous lead. $Pb^{208-204}$ represent the lead composition at the time of solidification, the fossilized remains of uranium^{238} which decays completely in 4500 million years. By using these isotope ratios to substract non-radiogenic components from the lead in stony meteorites which also contain uranium and thorium, the age of stony meteorites since solidification is found 4.6 million years. An almost identical age is found from K^{40} to A^{40} ratio. Argon (A^{40}) was formed from radio-active potassium (K^{40}) and compairing it with meteoric ratios (lead content in stony meteorites.) we may arrive at the figure of 4000 million years; a thousand million years would be necessary to account of the premelting phase.

Puṣan (*Gk* Pan=*Rom* Faunus, representing the Auriga) is the paramour (jāra=*Tib* jar) of his sister (*Rv* 6.55.4-5) and the second husband (didhiṣu) of his mother (*Rv* 6.55.5). Puṣan brings to the husband in whom men sow their seeds (*Rv* 10.85.37). Māra (*Rom* Amor) tempted Buddha with his daughters—Taṇhā—Tṛiṣṇā (*Gk* tarai=*L* torreio, thirsting, longing), Arati=Rati (*Gk* Erato, the muse of erotic dalliance), and Rāga—sexual ardor.——*Samyutta* 1.124. *Dhammapada Athakathā*.

A good wife is like a maidservant in chores; a councilor in giving advice, in beauty like the goddess of Fortune, patient like the Earth, in affection like the mother, a courtesan while in bed, Kāryeṣu dāsi, karmeṣu mantri, kṣamayā dharitrī, sneheṣu mātā, śayāneṣu vesyā, sat-karma-yuktā kula dharma patni. The family in which there is the infection of tuberculosis (kṣaya), epilepsy (apasmāra), diabetes, luetic leucoderma (śvitra), syphilis or leprosy (kuṣta) is to be avoided in marriage, however otherwise it may be rich or influential, *Manu* 3. 68. A faultless wife takes delight in serving her husband (Anavadyā patijuṣteva nāri, *Rv* 1, 73.3). The wife is very dear (Jāyām upa priyām—*OHG* fria=*Goth* frijon=*Ger* freien, *Rv* 1.82.5). "They declare that a bride is given to the family of her husband, and not to the husband alone". —Āpstamba Dharma Sūtram, 2, 10.22.7.

As the courtesan (yoṣā=*Z* jāhi) allures a gallant youth (marya=*Gk* meirax—youth=*Lith* merga=*L* maris (male)=*Fr* mari; Mitannian nobles were called Marya-nni) to bed for copulation, so a widow (vidovā=*Z* vidova =*L* vidhua=*It* vedova=*Goth* widuwo=*Ger* witwe) entices her *devara* (=*L* devir, levir=*OSI* devari=*Lith* dewiris=*Gk* daer); Śayutrā Vidhaveva devaram maryam na yoṣā kṛiṇute sadhastha. *Rv* X.40. 2.

18. Marriage was based on economic consideration amongst Celts=Kelts, and not for sexual gratification or progeny. Sexual life was rather loose. Fraternal polyandry is mentioned among the Celts in the Irish literature about the first century A.D. Clothru, queen of Connaught, had three brothers for her husbands. Host placed his wife at the disposal of the guests and pilgrims on journeys. There was no sanctity of virginity or prenuptial chastity. Princesses of noblest families, besides being freely offered to guests, bestowed their favours on whomever they pleased. Bodily modesty was undeveloped. Celtic warriors in full fighting costume were but for their weapons and ornaments entirely naked. It was an invariable usage for young unmarried girls to attend on them and assist them with their ablution, to massage them and wait on them at their toilet. Men and women bathed in public. It is mentioned when a troop of warriors and women were on the march, a young woman striped herself naked merely to attract the attention of a hero. Robert Buffault: *The Mothers*, Vol. 3, P. 388-390. Arii=Harii, a Kelto-Germanic tribe who lived on the

Upper Vistula, from whom the Ārya has been named, was no exception to this trival more. *Upari* (upper)=*Gk* uper=*L* super=*Ger* uber.

19. *Okkaka* (Ikshvāku) had 4 sons and 5 daughters by his first wife. By the instigation of his second wife who became the mother of a son, those 4 sons (*Skt* sunu=*Z* hunu=*Goth* sunus=*Lith* sunus=*Ger* sohn) and 5 daughters were banished from his kingdom. They went to the Himalayan foothills and settled at Kapilāvastu. Four brothers married 4 sisters in common, and their descendants are known as Sākyas.—*Sumaṅgala-Vilāsinī*. This is substantiated in Kunala Jātaka 536 where Sākyas of Kapilāvastu were ridiculed for cohabiting with their sisters like animals. Sakas and Andhras practised cross-cousin marriage. All the brothers married all the sisters in common to prevent divisions of properties. Sākya Sihahanu married Kāñcanā (golden), daughter of Sākya Devadeha; Devadeha's son Añjana married Yasodharā, sister of Sihahanu. Añjana with Yasodharā had two sons—Supabuddha and Dandapani; and two daughters—Māyā and Pajāvatī. Sihahanu with Kāñcanā had 4 sons—Suddhadhana, Dotdhana, Sakyodhana and Amitadhana; and two daughters—Amitā and Pamitā. Supabuddha and Dandapāni married Amitā and Pamitā—sisters of Suddhadhanas. Amitā had a son—Devadatta—and a daughter—Bhaddā-Kacchanī (light yellowed)-Bimbā. Suddhadhana with his brothers married Mayā and Pajāvatī. Māyā giving birth to Siddhārtha died on the seventh day. Pajāvatī brought Siddhārtha up. Siddhārtha married Bimbā, though Devadatta wanted to marry her himself. This caused antagonism between Devadatta and Siddhārta as long as they lived. Pajāvatī had also a son—Nanda, and a daughter—Nandā. When Nanda was preparing to celebrate his marriage with his sister Nandā, he went to his step-brother Buddha who was then at Kapilāvastu to be present on the occasion. Buddha induced Nanda to enter into monastic life. The separation from Nanda, her brother lover, became unbearable to Nandā. Nandā induced her mother Pajāvatī to become nuns of the Buddha Saṅga so that she could remain in company of her lover Nanda. But as a disciplinary action, the Saṅga forbade Nanda to meet his sweet-heart. Nandā fell in love with Licchavi Salha. *Candra*, shining, the Moon=*L* candere, to glow white=*Gk* kandaros, live coal.

Ephthalite—Vetāla—rulers were related to the royal family of Avars (Ābhiras), an allied Hunnish tribe, by marriage. The Ephthalite woman was allowed several husbands who were generally brothers, the eldest brother marrying the girl, and the younger brothers being automatically admitted to conjugal rights. And she had a peculiar form of headdress whereby one could tell at a glance the number of husbands she possessed. Ephathalites occupied Bactria after driving out the Kashans, and after occupying Merv, swarmed on to the Iranian plateau in 427 A.D. Ephthalites occupied Transoxonia from Kadir Kushans and captured Gandhara in 465. Ephathalites appointed a Tigin—princely viceroy—Toramana to rule over Indian domain. Toramana by his conquests over the Guptas became virtually in 470 a paramount prince. In 532 the Turks, another Hunnish tribe, had risen in rebellion against their overlord—the Avars—and completely crushed the Avars and became masters of N Turkestan. The daughter of a Turkish Khagan was married to Sasanid ruler Khusru Anushirvan. Turks and Sasanid jointly attacked and defeated the Ephthalites. Turks secured Sogdia, and Sasanids Bactria and Afghanistan. Toramana died in 502 and was succeeded by his son Mihirgula. As the Ephthalite homeland was occupied by Turks, Mihirgula was deprived of any military reinforcement and aid. *Parama*=*L* primus.

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20. *Savitrī* is the zodiacal light—faint glow, sometimes as bright as the Milky Way, seen in the evening about an hour after sunset; the pyramid is brightest at the horizon and fades out toward the zeneath. It is seen on nearly every dark clear night in the tropics as a wedge of light wide at the horizon, sometimes reaching to the zeneath. It is apparently caused by the scattering of sunlight by interplanetary dust. Nearly 10,000 tons of interplanetary dust fall on the earth daily. Because it stretches along the zodiac—the imaginary belt of the sky that contains the path of the sun, the moon and the major planets—the luminous pyramidic glow is known as the zodiacal light. As the earth turns on its axis, the glowing pyramid sinks beneath the horizon; the last and faintest vestige dissappears a few hours after the sunset. Toward the morning the spectacle is repeated in reverse order in the eastern sky. The faint apex appears a few hours before the dawn. The entire pyramid attains its full splendor about an hour before sunrise. Because conjugal coitus is usually performed during the appearance of the zodiacal light—known as Savitrī, Savatrī is called the goddess of coitional pleasure. "We ardently pray to divine Savitrī to grant us coitional pleasure=Savitur vayam vājayantah puraṁdhyā bhagasya ratim imahe. *Rv* 3.62.11. Savitrī=*Rom* Subidus=Subigus. *Śuddha*=*L* castus=*Gk* Katharol, chaste.

21. "Among the Austrics, cross-cousin marriage was the usual norm. Betrothal took place quite early in infancy, even before births by the parents of both sides. The brother sister relationship is surrounded with many *Taboos* in order to avoid any suspicion of incestuous implications. The brother never talks to his sister directly, nor she to him. He does not use obscenities in front of her as he would before most women. They never sleep in the same hut or camp, except as infants. At a very early age, they are separated. Sister always helps her brothers if they are involved in a fight. A young brother always accompanies his sister when she first goes to her husband's clan to live after their marriage. The brother is usually pre-adolescent, but sometimes may be older. The husband looks after the younger man and assumes the place of father to him during his residence there. The brother is supposed to look out for his sister, seeing that she does not commit adultery, preventing the men from seducing her and by his presence protecting her from ill treatment even by her husband." P. 65. W. L. Warner: *A Black Civilization*. In ancient India, marriage with a girl who had no brother was not desired. "Brotherless girls long for men—Abrhāteva puṇsā eti praticī,"—*Rv* 1.124.7.

22. "One of the most mysterous of Kikiyu rites is the symbolical second birth, undergone by both sexes at the age of about 10 and consisting of dramatization of the birth of the child. Until the new birth has been undergone, no individual can be circumcized, inherit property or take part in any religious rites of the country". P. 203. C. G. Seligman: *Races of Africa*.

23. *Marriage customs in ancient Greece*.—Sensuality was the exultant creed of the Greeks. Hera in order to induce relaxation and sleep in Zeus who was a partisan of the Trojans went to Ida and presented herself in such a seductive pose that Zeus told her that he never had felt so excited with passionate turgescence and he wanted to gratify his libido then and there. Hera protested that in such an open place in day light their sexual union would be observed by all the gods. But Zeus clasped her then and there to enjoy his lust (*Iliad*, 14). Voluptuous Aphrodite tired of her limping husband Hepaestus yielded to the amorous dalliance of the vigorous and youthful war god Ares. Hepaestus detected them in the lover's embrace and summoned all the gods to witness this amorous

drama. Without being disturbed by the presence of immortal spectators who heartily enjoyed this lascivious scene and in the midst of their loud laughters and joyous glees, the lovers lustily performed their coital gymnastics (*Odyssey*, 8). Heracles took great pleasure in eating, drinking and sexual congress; he wedded many wives, yet he begat children with many maidens; and he had 14 boy loves of which Iolaus, Hylas and Admetus were favorites (*Athenaus* 12). Tyrrhenian women took greatest care of their bodies and often practised gymnastic exercises together with men and considered it not indecent to show themselves naked (*Athenaeus* 12). The Greeks thought wife was the mistress of the house, through whom legitimate offspring could be acquired. To her was entrusted the management of the house and of children; girls upto their marriage; boys to be grown up to be sent to the gymnasia. Penelope waited for her husband for 20 weary years in spite of many admirers and suitors for her hand (*Odyssey* 1, 356-60). In Homer's time though wife was purchased though cattle (hedena), it was later converted into dowry presented by the parents to the newly married daughter. Boeotian poet Hesiod (Works and Days 509-701) says that a man should marry at thirty a virgin of 19. Æoles, Æolii (Aeolians) = *Pur* Aila. Hera = *svar*—light, heaven.

In Greek marriage dowry was the essential factor, especially in Ionia of Ions (Ionians) = Iavanu of Sargon 720-706 B.C. = *Heb* Javan = *Skt* Yavana, Yauna. If the father could not find a husband for his daughter after she was of marriageable age, the aid of a female match maker—Promneotride—was solicited. If a suitable youth was found, the betrothal (eggysis) took place—that is the ratification of two contracting parties to marry which was required to make the ceremony legally valid. The amount of the dowry was settled at that time. Rich men supplied dowries of their poor relatives. Sometimes the deserving citizens received dowries from the state as in the marriage of two daughters of Aristeides, each of whom received 3000 drachmae (Rs. 1500). Besides money, dowry consisted of household goods, ornaments, clothing, furniture, and sometimes slaves. Though according to Solon's Law, ready money as a part of dowry should be excluded, as marriage whose object was procreation of children to please the gods and for the welfare of the state should not be a monetary commercial transaction. But it was honoured by breaches than by observances. After the legal formalities were complied with, the father-in-law offered to his son-in-law a golden goblet of wine in honour of the alliance. It was followed by congratulations of mutual friends and a feast sacrifices were made to Hera. The bride offered on her altar a lock of her hair and her girdle as a symbolic surrender of her virginity. Sacrifice was also offered to Aphrodite. The sacrifice was followed by a bath of the bride, the water of which was brought by a boy from a sacred spring or stream. Bride's father then gave a feast. The bride and the bridegroom had to take sesame cake which was a common dainty and to which fructifying power was ascribed. After the meal, the bride was driven by oxen to the bridegroom's house. She sat between the bridegroom and his *parochos* (best friend or nearest relative). The mothers of the bride and bridegroom followed the carriage on foot in a procession with wedding torches. *Ka* (who) = Z ka = *L* qui = *Gk* tu = *Jr* qui.

Marriage procession sang wedding song of Hymen, the god of marriage to the accompaniment of flutes. Young men and women of the bridegroom's house arranged the nuptial couch and adorned it with flowers. When the bridal party arrived at the night fall, they were welcomed by Hymenaeus songs, sung in chorus by youngmen and maidens in turns. As the night deepened, the bridegroom rose up, clasped within his arms the modestly resisting wife and carried her to the nuptial chamber. They were followed by his best friend. Maidens rushed after them. The bridegroom reaching the nuptial chamber slamed the door and pushed forward loudly the bolt and asked his friend to guard the door. The maidens instead of forcing entrance sang a joking song against the door keeper. And they commenced the connubial embrace song—Epithalaminum. In Boeotia the newly wedded couple reparied to the temple of Eros. The next morning after the *night of secrets*, the wedded pair were awakened by serenede and congratulations with all kinds of presents from relatives. It was followed by a feast in the bridegroom's father's house in which the newly married wife cooked all the meals, but did not take any other part in the banquet. No housewife took any part in any dinner or banquet in which there were any outside guests.

After marriage she remained in the Gynaekonitis. Henceforth only the bedroom and the eating room were common to the husband and the wife. Wife was addressed as *gyne*=bearer of children. If there were no male guests, she might sit down at meal time beside the couch on which her husband would be reclined. Wife's duty lay in the supervision of the moveable and immovable property of the house, of the male and the female slaves, particularly the females, kitchen and the nursing of the sick. She would attend to the mending and making of her husband's clothes. Spinning was the unfailing occupation. Weaving, too, was sometimes done at home. Wife's property became husband's and in the eyes of the law, she possessed no independent status. If divorced for barrenness or adultery or widow[23c] without children, she returned to the charge of her father or her brother. In Athens Cecrops was the first to join one woman to one man; before is time unions had been loose and promiscuity general (*Athenaeus* 13.555). *Deva*=Z daeva=*L* deus=*Lith* devas=*Gk* theos..

In Sparta Dorian (Dorus=Druse=Durhani=Durhya) maidens exercised openly with Dorian youths. In Sparta it was the custom to shut off all marriageable maidens in a dark room and unmarried young men with them. With secret understanding, Dorian youth carried off an adolescent woman without any dowry to his home. The Dorian youth spent the day with his comrades and slept with them at night. Yet he and his wife managed to meet together often secretly and many of them had children before they were known to the public as husband and wife. And the husband used to transfer his conjugal rights temporarily to one sexually stronger from whom he expected especially beautiful and vigorous children without the marriage thereby being upset; wife also exercised her choice for the same purpose. Dorian people possessed no private property. The state managed land and trade through the slaves and each Dorian got what he needed for the maintenance of his family in frugal comforts. An Athenian woman, caught in the act of adultery "may not put on any ornament, may not visit public temples lest she should corrupt women beyond reproach. But if she adorns herself, then the first man who meets her may tear her clothes from her body, take her ornaments from her, but cannot make her cripple or kill her".—Aechines. In Sparta it was usual to expose feeble and deformed children on Mt Taygetus. In Athens it was not very unusual to expose children, especially girls, sometimes with neck chains, rings and other distinctive marks, in large clay vessels, in such a manner that they could be found out and brought out by women who had not had any and did not want to lose their husbands (Euripides, Ion). In Cyme the adulteress was dragged to the market place and exposed on a certain stone in the sight of all. Afterwards she was made to ride on an ass through the city, and she had the dishonoured name of the *rider on the ass* (Plutarch: Questiones Graecae 2). At Lepreum, the adulterer was led through the city for 3 days bound, and was deprived of his civil right for the rest of his life. The adulteress was obliged to stand for 11 days without a girdle and transparent vest (Heracleides Ponticus *Pol* 14).

In ancient Greece as soon as the bride entered the house of her husband, she ceased to exist for her parents. They sold her and so lost all their claims on her. This was symbolically expressed by burning before her husband's house the gaily decorated carriage that brought her there.

Roman Marriage.—The Romans had three forms of marriage by which the marital authority—manus—could be exercised—*confarreatio*, *caemptio* and *usus*. Confarreatio was the marriage of the patritians, performed by the priests and the bride was taken into her husband's *gens*. *Coemtio* was the marriage of the plebian freedmen and women; in the beginning the plebian wife was not bound to enter into the family (*gens*) of her husband. There was a legal bond, but no religious ceremony. In *usus*, a year's cohabitation legalized marriage among the plebian and freedmen, but there was no *manus* unless within the year there has been no interruption of sexual relation for continuous three nights; the wife remained under the authority of her father. The Roman marriage could not be celebrated on festival days. The bride laid aside the dress as a girl to the altar of Fortuna Virginalis and put on the bridal apparel—a specially woven tunica and a woollen girdle, and particularly the *flammeum*, a large red veil which covered her head. Beneath her red veil, the bride wore a crown of flowers which she gathered herself. After the guests assembled, the marriage contract was completed in the presence of ten witnesses after the bride and the bridegroom made a solemn declaration of their marriage agreement, andthe bride uttered—quando ubi tu Gaius, ego Gaia—when thou art the bull (father) of the family, I shall be the cow (mother). After their declaration, the bridal couple, led up to each other and their hands brought and clasped together by a *pronuba*—a married woman who represented Juno, sat on two seats tied together with a sheepskin. A pig or a bullock was sacrificed in the midst of prayers of the priests and the couple repeated them, walking together round the altar. The bride and the bridegroom then received congratulations and presents and good wishes. Banquet followed. The bride was torn and gagged away by her husband from her mother's side or her next of kin. And in a procession the bride reached her husband's house. The wife anointed the door posts with oil and bound them with woollen threads. The husband lifted her over the threshold, and inside she was received by him with common possession of *Ignis* and *Aqua*—fire and water. Together with him she lighted the new hearth fire and she was then sprinkled with water. The pronuba had already the nuptial bed and given the bride all necessary instructions. The bride prayed to Juno Virginensis and to Cincea, the goddess to whom the lessening of the girdle was consecrated. The husband loosened the wife's girdle and stripped of her cloth. She was seated down on the genital organ of Mutunus Tutunus to make the first offering of her virginity to the god (Lacantius 1, 20, 36). Mutunus (originating perhaps from mentula=male organ) Tutunus had a sanctuary in ancient Rome, visited by veiled women. In ancient times husband's friends had sexual intercourse with the bride first. A little later marital intercourse took place in the presence of witnesses. The sexual union of the newly married couple was superintended by god Subigus to see that she surrendered without fear and delay; goddess

Prema to see that conjugal union took place without pain and struggling; goddess Pertunda to see that it united them in a joyous lasting bond. Until 445 B.C. a regular marriage (instalæ nuptiæ) could only be contracted between the patrician families. Between patricians and plebians there was no *connubium*. The earliest age at which a man could marry was 16, and a girl at 12.

Confarreatio rite meant eating a honied cake together; coemtio meant marriage by purchase. Marriage by the purchase of the bride disappeared early in Roman life. Rather the bride had acutally to obtain the groom by the offering of a dowry. Though the dowry was usually at the husband's disposal, its equivalent had to be returned to the bride in case of divorce by the husband or at his death. Under ancient Roman Law, a woman was perpetually a minor. She could not own or transmit property or enter into any business transaction. Even her children were not legally hers ; she had no right over them. The Roman father had the absolute unconditional right over his children. Subigus=Subhaga.

Teen Age VD in USA.—In the last 5 years, the rate of reported cases of infectious syphilis among 15-19 age group has more than doubled from 10 in each 100,000 of population in 1956 to 22 last year. The rate of reported gonorrhœa among the teenagers has risen from 408 for each 100,000 of population to 428. The latest rate of infected venereal diseases amongst youngsters is almost three times the rate of all age groups. The total syphilitic infected population could be as high as 2000,000. While another 1000,000 countracted gonorrhœa last year. About 1000 school girls under 17 get pregnant in New York City each year.—Time, April 7-1961. In 1959 in USA, the number of young mothers under 15 were estimated to have 697 illegitimate births per 1000 live births. *Science News Letter*, August 12,1961.

23a. *Dharma* (dhṛi, dhārayati, that supports)=*L* firmus, a law firmly set=*Gk* thronos, a royal seat=*Lith* derme, a treaty. *Sāstras*=*L* sacer, a variety of sancio, meaning sanction which induces to the observance of customary laws. Sāsana=*Ir* sasan, a royal edict.

23b. As a contraceptive measure, vasectomy (vas deferens—*Gk* ektome, excision) is practised on men so that spermatozoa and semen cannot escape during sexual congress. As the semen cannot find any outlet, by its accumulation, through back pressure seminal epithelium degenerates while at its cost interstitial cells increase. The consequence is that the vasectomized adolescent has enhanced sexual potency and virility, though due to lack of orgasm, tension-relaxation is wanting. In a reproductive woman, ligation (*L* ligare, to bind) of the oviducts is made so that the ova cannot be fertilized in the oviduct and be carried to the uterus for implantation. The legated woman has sharp adominal pain and constant headache with vertigo. Though libido persists, there is no amorous gratification for lack of orgasm and its accompanying vibratory reflexes. In a normal ovulating female in sexual excitement waves of contraction, starting from the end of oviducts progressively reach the cervix (fundus downwards) which throbs and in libidinous coitus projects the cervical mucus which is sucked in by the cervical and uterine muscular contraction, carrying a large number of sperms with it. When the oviducts are tied or excised, the gratifying voluptuous muscular chain reaction is missing.

CHAPTER V

THE ORIGIN OF TĀNTRIKA SEX WORSHIP

IN the Dharma Sāstras,[23a] Purāṇas and particularly in early Buddhistic literature, sexual continence (*jitendriya*=one who has conquered his sensuality)[24] was regarded as essential qualification for sainthood; sexual union was regarded as his downfall. Even aspirants for heavenly domains were dragged down to their degradation by Apsaras (a=without; psaras=*Z* fsaerma=*Toch* srama=*Pers* saram, shame; shameless bawds) who were sent by their rivals to induce them to copulation by their seductive charms. There might have been some among the younger monks and nuns who being carried away by biotic impulses indulged secretly in amorous dalliances and amours. But that was not their ideal. They simply could not sublimate their instinctual urges. They could not believe contrary to their national traditions that by promiscuous sexual unions they would be promoting their health, longevity and sainthood like the Taoists of China. Patañjali in his *Yogasūtras* 2.38 is emphatic that one gains energy through continence—*Brahmacarya pratishṭhayam vīryalābhah*. That muscular strength and nervous vitality could be *obtained* through moderation in coitus and sexual abstinence was not mere mystic fantasy but based on pragmatic realism.[6+23b]

Rv Rita=*Z* Arta, Ereta, Arsa=*Gk* Logos=*Chin* Tao is the orderly process of the change of nature. Lao Tzu's son General Tuankan died about 273 B.C. Lao Tzu had been a noble of Honan family. The *Mad Man* Chhu instead of seeking employment at the courts of princes withdrew into the wilderness, forests and mountains there to meditate upon the order of nature and to observe its innumerable manifestations. Lao Tzu preached and practised complete naturalism, simplicity, the cultivation of inward calm, prolonged meditation, gratification of instinctive urges, control of breath, mental self-control, avoidance of gram in the dietary, regular bending and stretching as physical exercises, massage of the body, and the acceptance of the inevitable evils in life with equanimity of temperament. Variṣṭha=*Goth* balīsta=best.

The Taoist aspirant for rejuvenation of the body and prolongation of life (*hsien*) had to undergo a considerable training in (1) respiratory techniques; (2) heliotheraphy;[25] (3) gymnastics;[26] (4) alchemical uses; (5) dietetic regulations; (6) sexual techniques, in relation to proper seasons, times and places. The breathing exercises are described in an inscription on 12 pieces of jade of six century B.C. The Taoist sought to keep the inspiration and expiration as quick as possible, to hold the breath closed up to retain the air in the lungs as long as possible for vitalizing (oxygenation) of the lungs. The method of wearing the sun rays consisted in the exposure of the body to the morning sun light; women adepts were to expose their bodies likewise to the moon who was supposed to be regulator of their menstrual cycle. The Taoist recognized the importance of adolescent women in the nature's scheme as the mother of the race. They not only accepted the equality of woman with man in the conviction that the attainment of health and longevity needed the active cooperation of the sexes; they also gave reverential status to their sex, as pubescent maidens are more intuitive, yielding and receptive like water which thus became their symbol. They lustily admired the accentuated feminine characteristics of long and thick locks of hair with low forehead, side curls on their temples, firm resilient globular breasts, broad fleshy hips, fatty-cushioned monsveneris with thick bushy growth of black hair, free alike from class distinctions of the Confucians and their prudery, pathological asceticism of the Buddhist bigots.

"The continence as advocated by Buddhists is not only improper but also harmful as it is contrary to the dictates of nature and if long continued would lead to *stoppage sickness* neurosis of the victims." Lengthy abstinence may cause hardening of the retained secretions and enlargement of the prostate. Enlargement of the prostate, frequent in advanced age, interferes with the emptying of the bladder and often causes sexual irritation. The ceremony of the deliverance from guilt (*shih tsui* of illegitimate unions) consisted of ritual voluptuous dance at the new or full moon, called "the coiling of the dragon (*yang*) and playing of the tiger (yin)" which ended in numinous group catharasis in a public hierogamy or in successive "sacred unions of breaths—*Hochi*"[27] of the members of the assembly in the chamber along the sides of the temple courtyard. The couples were instructed with the sexual techniques which consisted of frequent coitus reservatus; numerous intromissions with a succession of postures for every one ejaculation. Female orgasm (*khai*) strengthens man's vital power, hence the male act was to be prolonged as much and as long as possible by *Yin* (estrogen as found in the vagina). It was the method of nourishing life by means of *Yin* and the *Yang* sacred unions, and their basic aim was to conserve as much as possible the semen (*ching*) to be reabsorbed. These two vital elements in male and female adolescents act as indispensible nourishment of the one for the other. The seminal essence is held in the seminal vesicles (*ching shi*) in the lower part of the abdomen, and while the sperm is stored there, the menstrual blood accumulates in the corresponding organ of the female body. They tried to increase the amount of the life-giving *ching* as much as possible by sexual stimulus, but at the same time to avoid its loss as far as possible. For semen is the essence of *Yang*. Seminal discharge was prevented by the contraction of the perineal muscles through withholding the breath by deep inhaling and grinding of teeth. Another method of making the semen return was the pressure exerted with the two middle fingers of the left hand on the urethra between the scrotum and the anus at the time of ejaculation, thus diverting the seminal secretion to repair the brain by forcing it up the spinal column through the lower fields of the cinnabar (1½ cm below the navel) to the head (actually into the bladder to be voided into the excreted urine, now used as a contraceptive measure) on the false belief that the seminal essence could thus be made to be reabsorbed, rejuvenate and vitalize the thousand petalled brain lobes. Lieh Hsien Chuan says: "The art of commerce with women consists of refraiming from ejaculation and causing the sperm to return and nourish the brain".[27a] *Tib.* Ngoloks=Nāga-loka.

Bhaga, a pre-christian Taoist, immigrated from China to India. *Tao-Te-Chung* was translated into Saṃskṛita for Bhāskara Varman, King of Kāmarupa, who had asked Wang Hsuan Tshe in 644 A.D. (Pelliot's memoirs in the translation of Chi Ku Chin Fo Tao Lun Heng), of which Kumārajiva made a commentary. *Vedic* Go=*Gk* Gai or Ge =*Z* Gava=*Gothic* Gawi, the earth was fertilized by the sky god *Varuṇa*=*Z* Varan=*Gk* Uranos=*Armenian* Vran= *Khatti* Uru-w-na=*Mit* Uruvna. Sitā (furrow, earth *Rv* 4.57.6), wife of Indra who with rains and thunder fertilizes her.—*Pāraskara Grihya Sūtram* 2.17.9. Assyrian prayer to Asshur: whose plough has furrowed deep and fertilized the earth. *Bengali* ātāra, in the sense of a furrow made by a plough, also means pudenda, vagina. Australasian *lak* means both phallus and spade as *Lakuta*, *languda*; Malay *lāṅgala*, Khasi *lynkor*; in Bihari *landa*, *laṅgula* (plough) and finally *liṅga*. Bheda=*L* fendo=*Fr* fente is the hairy crack, furrowed by *śepa*=*L* cipus—śepo romaṇvantāu bhedau *Rv* 9.112.4. Vāk (*Gk* Logos) is the primeval energy of the universe—Śabda Brahmana *Rv* x. 125.1=sound vibration. Brahman in *Rv* 2.50 is twig-growth, from *breh*, to grow=

vegetable growth. Brahman=*Z* Baresman. Brahman=*O* *Ir* bricht (charms)=*Gk* phlegma=*Rom* flamen (priest who can exercise charms). *Rv* 6.75.19 Brahman is the Milky Way. *Tapasvin* is glowing ascetic from *tapas*=*L* tepar, tepere (to warm)=*Russ* topite (to heat)=*Khatti* tapassa; *Skt* tapta (hot). *Skt* dakṣa=*Gk* dexios=*L* dexter=dexterous. *Skt* vrata=*L* veritas=*Fr* verete=*verity*. *Rv* 5.10.6 Anuvrata is the faithful performance of the vow of verity. *Rv* 5.10.6 Apavrata is the deviation from the vow. Ushā, Arjunī, Bṛiṣayā, Dahanā, Saramā, Saraṇyu are the vedic dawn maidens like the Greek nymphs—Eos, Argynis, Briseis, Daphne, Helen, Erinyes. Arjunī is shining with rosy colour of the dawn, a name of Ushā. Bṛishayā burns with sexual desire for male. Dahanā is burning with passionate ardor. Saraṇyu is fleeting, daughter of Tvāṣtrī, wife of Vivaśvat, mother of Aśvins, Yama and Yāmi. Saramā is the fleet one, authoress of *Rv* x 14.10. Ushas is the dawn goddess, wife of Bhava=*Gk* Phoebus, the shining one, the epithet of Apollo, a name of the planet Mercury that appears as a morning star, lover of Eos=*L* Aurora=*Vedic* Ushas=*Lith* Auszora=*HG* Astam. *Usha* means lover, *Rv* x. 95.4. *Rv* 8.70.10 vasiṣṭha, copulator; *Rv* x. 95.17 Vasishṭhaha, ardent fututor. *Vas*=*Gk* keutes=*L* futuere. During Vratya-stoma (praise) and Mahāvrata (solstitial ceremony), a Puṃścalī (a woman who always longs for coitus=a nymphomaniac) has copulation with a Magadha or Brahmacārin (a youth who practices sexual abstinence, so noted for virility).—*Āpastamba Srauta Sūtram* 21.17.18; *Jaiminiya Br*. 2.40.4. Vrātyas wore turbans, dressed in black, had two ramskins—one white, and the other black—slung over their shoulders as insignia. They had a sharp pointed stick (trident), a *niska* garland round their neck, an unstrung bow. Vrātya=vagrant with a vow. Clad in black antelope skin, long bearded, Vrātya (*Russ* vrati=*Lith* burti, meaning apothecary) journeys—a Scythian Macha or Magadha

Saivite bacchant medicine man, and puṃścalī, a wandering Saivite bacchante, perhaps engaged in magic, particularly fertility rites and as an itinerant mid-wife.

The first Buddhist arrived in China about the middle of first century A.D. At the end of second century Mon Tzu wrote a book *Li Hud* (The Resolution of Doubts with a dialogue), reminiscent of Milindapanha. Subhākara Siṃha (Shan Wu-Wei) came to China in 716. He approved of the statues, showing sexual unions, but warned that they were not to be placed in public halls or temples. Vajrabodhi (Kang-Chi) came to China in 732. Amogha Vajra (A-Moa-No) in 774 A.D.

Lokāyatikās = Svabhāva-vādins = Sahajias believed in the gratifications of their natural inclinations, and not in their suppressions—*indriya-nigraha*. Guhya Samāja Tantra[28] (secret society manual), similar to Prañjā Pāramitā, a product of third or fourth century A.D., based to Mulakalpa of second to third century A.D., declares that liberation does not depend on bodily sufferings and abstinence of worldly pleasures. In the first chapter, each of the Dharani Buddhas is associated with a *Śakti*. In 18th chapter, there is a description of Prajñābhiseka—the initiation of the disciple with Prajñā or Śakti. The *Guru* (preceptor) taking the hand of a *Śakti* who is beautiful, agreeable to the disciple, adept in *Yoga*, places it in the hand of the disciple, making Tathāgathas as witnesses, and placing his own hand on the head of the disciple, asserts that without his Vidyā Śakti, salvation is impossible. Blood and flesh of all animals and wine of any quality, and sexual unions with any woman could be indulged in by the follower of Guhya Samāja Tantra. Guhya Samāja Tantra (Ch. 7-8) of seventh century states that sexual congress with adolescent Candāla maidens and pretty sensual women is to be enjoyed for the sake of Buddha worship. In the Mahāyāna Sūtrālaṅkara of Asaṅga of fourth century A.D. there is the representation of the lord supreme—He-Vajra=

Heruka=Vajreśvara=Vajrasatva with the representative female consort in a state of union (*yuganaddha*) of coitus reservatus (*maithunasya parāvṛitti*). By diverting the semen in sexual congress one obtains great energy in the enjoyment of Buddhistic happiness and can unite with his wife without painful consequences.—Maithunasya pāravṛittam vibhutvam labhate param/Buddha saukhya viharentha dārā samkleśa darśane,—*Aśaṅga's Sutrālaṅkara* 9.5.45. Buddha Kapāla embraced in the left by Prajñā Citrasenā—intoxicated, nude without any fear and with dishevelled hair—whom the goddess kisses incessantly—prajñāliṅgitam vāme citrasenā matta muktakeśī devī cumbayeti muhr muhu.—Sādhanamalā A275. Yamanlāṅkāra is embraced by his Svabhā Prajñā, standing on the double lotus on the back of a buffalo; Bhagavatī=Prajñā is one-faced, two-armed, intoxicated with wine, wearing variegated ornaments and a girdle of tiger-skin which is slipping off from her waist; she remains in uplifted sexual posture—*yab-yum*. Ātmānam Yamānlaṅkāram Svabha-Prajñāliṅgitam mahiṣopari visrodala kamalā yūryayastham; Bhagavatīñca dvibhujikā mukham vicitra varanam ālidha padasthithan mada vihvalam skalatuyā ghramāmsukam bhagavatisaha samputa yogen.—Sādhanamālā A 288-9. Mahā Sarasvatī is accompanied by Prajñā (intuition) in her front, Medhā (intelligence) in her right, Smṛiti (memory) in the left, Mati (mentality) in the west. In Nāgarjuna's Rasāyāna (alchemy), rasa=mercury is the semen of Śiva, abhra=mica is the ovum of Gaurī; their combination makes men immortal. Mahārasa is the semen, and Sādhanā (modes of worship) consists in saving the same from any kind of discharge, and whoever is capable to give an upward flow of the semen becomes immortal. Kāyā sādhanā=culture of the body; kāyā siddhi=perfection of the body. Iddis=ṛiddhi (miraculous power). Buddhist *Śakti* worship was introduced in China in eighth century A.D. While the

Taoist sexual theories and practices were flourishing in China between second and sixth centuries. In India Tāntric sex-worship is not known before 4th to 5th centuries. In Sādhanamālā, 4 pīṭhas—sanctuaries—Kāmākhyā, Śrīhatta, Purṇagiri and Udayāna are given for the origin of Tantras. *Śakti*=*L* socius, companion=*Lith* sekti, to follow.

Indrabhuti, King of Sambala=Sambalpur of Uddiyana =Odrāyāna in 8th century A.D. organized Mantrayāna Buddhism with Vajrāyāna while his sister Lakṣmiṅkara developed Sahajāyāna. Both brother and sister preached and practised that when truth is known, no restrictions of food, drink or association with the opposite sex need to be observed and advocated Śakti worship. Indrabhuti opens his Jñānasiddhi with an invocation to Jagannātha. Indrabhuti's sister Lakṣmīṅkara who married the son of king Jalendra of Laṅkāpuri is regarded as one of 84 Tāntric Siddhas. Advaya Siddhi is composed by her disciple Advayavajra. Indrabhuti's son Padma Sambhava is associated with Virajā of Yajapura. Padma Sambhava and Tārā with other deities are invoked in a large inscription, incised on the back of a standing Buddhisattva of Udayagiri near Virajā which states that a Tathāgatādhisthita dhātugarbha stupa (a stupa with a relic inside dwelt in by Tathāgata=Buddha). In Kālikā Purāṇam, god Jagannātha and goddess Kātyāyanī are the presiding deities of Odrapīṭha to whom meat and wine were freely offered for propitiation. *Kubjaka-tantra* mentions Virajā as the goddess of Uddiyana. *Bṛihannila Tantra* described that Bhairavī, the consort of Jagannātha Bhairava, is the goddess of Uddiyana. Sonepur on the Mahānadī was regarded as Laṅkā as late as tenth century. A copper plate of Somavaṃsi prince Kumāra Somesvarendra by the end of tenth century reveals that the prince was the lord of Paścimi Laṅkā while the Manada copper plate grant by the same king is stated to have been registered on the bank of the river Citrapāla (the Mahānadī), close to the territory of Laṅkā (Laṅkā vartaka sannidhāna). Goddess Laṅkeśvarī, referred to in Sādhana Mālā, is even now regarded as the presiding deity of this territory and she is daily worshipped in the bed of the Mahānadī on a low rock, called Laṅkesvarī in which there is a short inscription in the character of 9th-10th century. When Rāma was exiled, he went with his wife Sītā and step-brother Lakṣmaṇa in Dasaratha's travelling coach, drawn by 4 fleet strong horses. He halted for the night at Tamasā (Tons) about 24 km from Ayodhyā. Starting at early dawn he crossed the Vedaśrutī (Biswi), Gomatī (Gumti), and Syandikā (Sai). At Syandikā, he crossed the frontier (*Rām. Ayodhyā* 49.11-12), reached Śṛiṅgavera (Singair) on the north bank of the Gaṅgā before sunset at the distance of 126 km in 12 hours. Rāma halted under an Inguidi (Terminaba Catep) tree. Crossing the Gaṅgā next morning, he landed on the Vatsa territory—*Ayodhyā*—52.101. From the south bank of the Gaṅgā, Sītā walked down to Pañcavatī on the Godāvarī (now known as Vāna Gaṅgā, originating from the Mahadeo Hills and Maikala Range). Sītā while crossing the Gaṅgā invoked her aid and promised her jars (kumbha= *Z* humbo=*Tochs* kumbas=*Gk* chumboz) of wine and many bulls on her safe return journey. Sītā was fed on flesh, obtained through hunting, and was bubling with energy; walking 23 km, halted as the guest of Bharadvāja on the north bank of the Yamunā. Walking 20 km along the southern bank of the Yamunā, she visited the sacred banian tree at Khatrā to Vālmiki Āsrama at Lalapur Hill, 12 km—Citrakuta Hill, 11 km from Karvi, 6 km Anusua Hill. Atri's place at Sarabhaṅga 300 km from Ayodhyā. Śṛiṅgavera to Sarabhaṅga 138 km. Sarabhaṅga to Mātaṅgi 250 km; Mātaṅgi to Laṅkā (*Lith* Lenke=wooded hill) =500 km situated on Tṛikuta (3-peaked hill=Indreva Hill 515m high with Hira river surrounding it on 3 sides, lying across Pampā lake, besides Riṣyamuka Hill—Simgorgarh at long 79.47, lat. 23.26.3 at the foot of Bhanrer Hill, 2 km north of the Hira Rock, there is an extensive plateau 620 to 725m high. "Here you see the Vindhyā covered with many fine trees. You can see the sāgara mahodadhi (the grea pool=*L* palus=*Gk* pelos=*Ger* pfuhl=*Gael* poll=*Lith* bala=*Beng* bhila, a marshy extension expecially during the rainy season by the collection of water in the shallow basin)". —*Rām* 4. 52.29-31. *Divā* (day)=*L* dies=*AS* Tiw.

In the colophon of the commentary on the He-Vajra-tantra of late 7th century=He-vajra pañjikā=Yoga-ratna-malā, preserved in mss in the Cambridge University Library, it is mentioned that it was made by Panditācārya Śrī Kānhapāda in the 39th year of the reign of Govinda Pāla who lived in 1199 A.D., possibly identical with Kānhapāda of the Cārya-padas and Dohās. Dharma Pāla, son of Gopāla who bore himself the title of Vikramaśilā Deva, founded the monastery of Vikramaśilā which his son Devapāla improved. Rāmapāla founded Jagaddāla Vihāra in his new Capital Ramāvatī at the confluence of the Gaṅgā and Karotoyā where he installed the images of Avalokitesvara and Mahātārā. In Jagaddāla, Bibhuti Candra and Dānaśila were great scholars. Mokshakara Gupta wrote Tarkabhāsā. Subhākara Gupta wrote a commentary on Siddhaikavara-tantra. Dharmakara translated Samvara Vyākhyā of Kṛṣṇa; Luipa and Dipāṅkara Śrījñāna conjointly wrote Abhisamaya Vibhāṅga. Śrījñāna was born in 980, went to Tibet in 1042 where he died in 1046. In Tengur catalogue Lui is a Bengali, and in Tibetan Grab and Tab, he is a Kaibarta of Kāmarupa where there is a Lohita river. Lui-pa=Luhi-pāda=Lohita-pāda. Lui=Rohita, king of fishes, Matsyendra Nātha=Mīna Nātha. In the Rudra Yāmala and Brahma Yāmala, it is mentioned that Vasiṣṭha being unable to obtain *siddhi* after the austerities for years, he was told to go to Mahācina. There he found that the Buddhists were indulging in wine and meat in the midst of many nude-women. When the reasons were explained to Vasiṣṭha and he enjoyed wine, meat, fish, dancing, sexual unions with orgasm, he became a great *yogi*. According to Mahācinā-Kramācāra=Cinācāra-sāra Tantra, Vasiṣṭha went to find Vishṇu under the aspect of the Buddha to ask him about the rites of goddess Tārā. He entered the great country of China and saw the Buddha surrounded by a number of pretty women in erotic ecstasy. Vasiṣṭha felt indignant and said: "These are practices contrary to the Vedas". A voice from space[29] corrects him: "If thou wouldst gain my true favour, it is with these practices in the Chinese fashion that thou must worship me". He approached the Buddha who said: "Women are the gods; women are life; women are adornment. Be ever among women in thought". Goraksha was a Sahajiyā, and his name was Raman-a vajra=Anaṅga-vajra. The union of prajṇā (*yoni*) and upāya (*liṅga*) fills the thousand-petalled brain—nirmāṇa-cakra, with ecstatic sensation—*mahā-sukha*. With the practice of *khecari mudrā* through arrestation of respiration—*kumbhaka*, one learns how to immobilize his semen, and the semen does not flow out or waste.—*Goraksha Saṃhitā* 61-71. The semen—*bindu* is the essence of life and vitality—Bodhicittam (thought-awakening=semen) notsṛijet=semen must not be discharged. Thus the Nātha embraced his Mahāmudrā, Kāpālika[32a] his Bhairavī, Tāntrika his Śakti (energizer), Vaisnava his Sakhī (comrade) or Mañjarī (favorite), Sahajiyā his Uttarasādhikā (inspiring and assisting female friend) when they were in their sexual ardor and frenzy (mahābhāva). For female intelligence is interlinked with her ovarian activities—Buddhatvam yoshid-yoni samāsṛitam. And to enkindle it, sex stimulation is the best means. But if they found that it put a severe strain on their nerves and musculature to prevent and arrest the seminal discharge, they facilitated the natural seminal outflow. But through the exercise of *vajrolī mudrā* they aspirated and

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sucked through their penile urethra and reabsorbed in their lymphetics not only the discharged semen in order to invigorate their nervous and muscular systems, but also the vaginal fluid which they thought would be restful and sedative to them.—Hata Yoga Pradapikā 382. Vajra (thunderbolt: hard and erect liṅgam)=*Ch* seng-chich; padma (lotus)=rati, yoni=*Gk* eurotas, gyne=*L* cunnus.

Korravai, the Tamil goddess of War and Victory, resembles Durgā. Silappadikāram, Tamil epic of sixth century, describes her as three-eyed goddess whose crown is adorned with the crescent moon, whose lips as red as coral are parted in a beatific smile, whose waist is encircled by a serpent, whose arms wield the trident, whose feet bedecked with anklets rest upon the severed head of Mahiṣāsura; praised by the gods and sages, she of the dark colour is the embodiment of victory, Dharma, wisdom and success. During the Pallava and Pandya rule from 7th to 9th centuries, representations of Mahiṣamarddinī are carved in the monolithic cave temples of S. India. The goddess is generally represented with a benign countenance, eight-armed, astride her lion, and aiming a spear at the demon. Śiva is Kāmeśvara. His *śakti* is Kāmesvarī, Kāmakoṭī, Lalitā, or Tripurā-sundarī. In Śrī-cakra, there are two sets of triangles, superimposed on each other. One set is composed of 4 male or Śiva triangles and the other of female or *Śakti* triangles. In the centre which is a point (bindu) reside Kāmesvara and Lalitā in inseparable (*abheda*) union. That point is the union of Pāṇḍura Bindu (whitish semen) and *Lohita Bindu*, reddish mahāraja=ovum. Rajas=menses as well as genital secretion. Just after his marriage Mahādeva had coition with his consort Umā for a long time without seminal emission; but as he did not want any issue out of this union, when he felt his semen was surging out, he withdrew his penis and discharged his semen on the earth; Umā became furious as she was deprived of the pleasure as well as the progeny; but out of this copious seminal discharges, war god Kārtikeya was born.—Rām 1.36.[30]

Amongst the Licchavis—Niu-chi—prettiest maidens could not be given in marriage. They were made accessible to all youths of aristocratic families—*Sādhāraṇī*. Amongst the Massai, Kikiyu of the same age groups, all maidens are accessible to all youths. In the temples of Baal (*Heb. Phoen* lord: *Hindu* Bāleśvara; *Babyl* Belu=*Skt* Bholānātha; called Ashor or Asher=*Skt* Iśvara. Carthagian Phoenices =*L* Poeni,Puni =*Vedic* Pani worshipped Cabiri=7 planets =*Gk* Kabeiri who are certain beneficent rich deities= =*Skt* Kubera whose wives are Bhadrā=luck, and Riddhi =success and Asherah=Ashirat, the Akkadian name of the planet Venus=*Mit* Issuri=*Skt* Isvarī); Assyrian Asshur (*Skt* Iśvara) and Istar=Astart=Asherah; Egyptian Osiris and Isis=*Skt* Ishā; Syrian Atargatis (at Ascalon as Derecto in the form of a maiden terminating in a fish tail); Thracian Bendis; Khatti Mā or Umā; Phrygian Cybele; Ephesian Artemis; Iranian Mithra and Ardhvi Sura Anahita (Anaites), gods and goddesses of generation, love and fertility, Hierodules (*Gk* ieros, sacred; doulos, slaves=Devadāsīs) were dedicated to entertain the gods and their representatives as priests and worshippers and they practised veneries as pious magic acts of veneration to increase the fertility of the people, animals and agricultural lands. When the Venus was in the centre of the crescent moon near Sagittarius *Rudra*, Sagittarius was called *Ardhenduśekhara*. The women practising these acts in pilgrimage centres were known as *Tīrthīgās* or *Pravrājikās*. Kings often took the queens and princesses of their defeated monarchs as their concubines to sing the glories of their victorious conquests or distributed some of them among their army chiefs, known as Rāja vesyā (*Ar* be-siwa, a woman who is used by many=Vāra-vanitā). Conquered common women were made slaves and they had to practise prostitution in the capital, and their average earnings for two days in a month had to be paid to the state as taxes, i.e. about 12% of their income; they were known as *Nāgarī*. They could manumit themselves by paying certain ransom money. As freed women they acted as personal comrades (*Gk* hetarae), actresses, sexual solaceuses and nurses, and they were known as *Ganikās*. Women convicted of adultery (*atitvari*) were also enslaved and had to serve their terms as state prostitutes. When they lost their attraction and became too old for the purpose, they acted as nurses—*mātrikās* in the state hospitals[32b].—*Kautilya's Arthasāstra* 1,27. Draco affixed the penalty of death, indiscriminate to rape, seduction and adultery. Temple prostitution was instituted in Greece as a safety valve. Solon softening the rigors of the Draconian code and religious formalities formally established houses of prostitution in Athens and filled them with female slaves, purchased with state money and bound them to satisfy the sexual demands of those who visited them, and all the gains went to increase the state income. Actresses and danseuses were regarded as demi-mondes, practising clandestine prostitution (*gupta vesyā=Pāli* vesi, vesiyā) without paying any additional taxes.

23c. Teutonic Heruli widows used to commit suicide on their husbands' pyres. Slav widows used to destroy themselves in order to accompany their dead husbands to the next world. On the death of Phrygian (=phryges=Briges=Bhṛigus) Paris of Troy, his wife Oenone threw herself on his burning pyre. Thracian widows on the death of their husbands used to vie with each other as to who was the most beloved so that she might have the honor of being slain on her husband's tomb. When the Scythian chief died his favourite concubine was strangled on the pyre together with the servants, chariot and horses. Several bodies of women were found on the tomb of Amenhetep II of Thebes. The remarriage of Chinese widows in the Sung period was regarded as an act of unchastity; those who committed suicide on their husband's death had the honorary gates—*Pailov*—erected in their honor by imperial command. *Satī* originated from such a custom.

24. *Our senses* are excited by the sight of beauty—*rūpa*, taste of fine dishes—*rasa*, the smell of delightful perfumes— *gandha*, hearing of a melodious voice—*savda*, tactile sensation through light touch of gentle pressure and warmth—*sparśa*. The sight of a sexy youthful beauty, even his or her photo or picture, stimulates all the endocrine glands by exciting the anterior pituitary through the light rays penetrating through the eyes. The optic nerves and the pituitary are very close to each other. Electro-magnetic waves come in a wide variety of sizes, ranging in a continuous series from a mile long radio waves to the tiny wave length of ultra-violet radiation. Our eyes however register only a very narrow range—roughly waves between 800 and 390 millimicron (one millimicron is 1/1000,000 millimeter) in length. The retina is provided with sensory cells of cones and rods. In the centre of the retina—in the fovea centralis—there are only cones which are pigmented from 3 to 7 colors, and no rods at all. From there to the periphery of the retina, the number of cones decreases and the rods become more and more numerous. When the light rays of different wave lengths strike the pigmented sensory photo-receptors of 3 to 7 different types, a colored image is perceived in the brain. The colored vision may be original or blends of light rays of different wave lengths. Thus greenish yellow may be homogeneous; it may also be a mixture of red and green or a mixture of orange and yellow. The cones are for day vision; they enable us to see bright objects and we owe to them our ability to see colors. The rods are active when the light is dim and with them we can have only shades of brightness. The retinas of all nocturnal creatures—toads, mice, rats, and bats—are equipped with rods only. The retinas of reptiles have only cones. The range of light frequencies in cycles per second is from 7.10^{14} (violet) to 4.10^{14} (red). Each color, although homogeneous in itself and of specific wave length, is divided by the eye into 3 parts; not until they reach the centre of the brain are the parts reassembled into a new entity. The eye cannot analyze a blend of colors into its components. Wave lengths in millimicrons: red 780; orange 610; yellow 580; green 510; blue 470; violet 420. A red of wave length of 600 millimicron stimulates the pigmented photo-receptor fibre to an intensity of 91 and stimulates the pigmented green receptor fibre to an intensity of 8, and the blue is not stimulated at all. If the red and green receptors are stimulated by an equal amount, it can be seen that blue receptors are not firing; the ratio of 72:72:0 gives the sensation of approximate 580 millimicorn which is yellow. The sensation of yellow could arise even though no yellow lights are thrown into the eye, but merely from the simultaneous stimulation of the same eye with red and green lights or from stimulating one eye with red and the other with green. Further the simultaneous stimulation of separate red, green and blue receptors in the same eye will yield the sensation of white. Red+greenish blue=white; orange+cyan blue=white; yellow+indigo blue=grayish white; greenish yellow+violet=white. Two wave lengths of the spectrum which produce white on mixing are called complementary colors. For a mixture of yellow and violet to yield white (grayish white), the ratio of luminosities must be nearly 40:1. The complementary color for green is purple—a mixture of red and violet. The eye tears contain Lysozyme, an enzyme that dissolves many air-borne saprophytes rapidly and completely. Lysozyme is found also in nasal mucus, sputum, various tissue extracts, vegetable juices and egg white. Tears also have the property of inhibiting the growth of many of the ordinary pyogenic cocci such as staphylococcus and hemolytic streptococcus, pneumococcus and vibrio choleræ. Tears possess a definite inhibiting effect on staphylococci, even after

lysozyme is destroyed by heating acidified tears. Hence Lysozyme is not the sole agent, but as yet an unidentified labile agent acts together to this cause in tears. The back and the edges of the tongue are supplied with taste buds—sensitive to the sweet, sour, salty and bitter sensations. Delightful aromatic odors are released in the mouth with the chewing of a savory meat, fruit or cloves, and these odors ascend through the narrow naso-pharyngeal opening of the nose. Taste and olfaction are intimately connected. Perfume is the volatile essence of the sexual organs of flowers—stamens and pistils. Naturally there is a very close relation between olfaction and sex. Each female moth emits a very delicate scent—so delicate that a human being is unable to perceive it, even if the moth is held before his nose. But the male moth with his enormous antennæ is amazingly quick in finding his mate, though the forest is saturated with hundreds of such odors, emitted by hundred of different moths, each having her special scent. The number of possible olfactory sensation seems to be unlimited. The human nose houses a great number of olfactory cells, each of which when stimulated produces a special sensation in the brain. Males and females become excited by these odors and the penis is enticed into the vagina (yaste gandah puruṣeṣu strīṣu bhaga rūcih), *Av* 12.1.25. We can hear no sounds that vibrate fewer than 15 or more than 20,000 times a second. In air sound takes nearly 5s to travel a mile, in water 1s, in iron or steel ¾ of a second. The humming sounds of the female mosquitoes are their irrestible sexy calls for their males. Frogs croak as their mating cells like the songs of the birds. Each person has an estimated total of 6,40,000 tactile areas, but they are not equally thick in all parts of the body; they are clustered closely together on the hands and the face, where as in some places, notably on the back, they are widely spaced. Tactile sensibility is acute when the skin and epidermis meet as on the lips. In ancient India, students and religious men were enjoined not only to deserve strictly sexual chastity, but also to restrain and control all their senses. For sensual excitements and pleasures gradually lead to sexual incontinence. And sexual pleasure is the climax of tactile stimulation. The visual, auditory, olfactory, gustatory and tactual stimuli may all be effective in arousing sexual excitement. "He shall not smile at a woman. He shall not touch a woman with his face in order to inhale the fragrance of her body. Nor shall he desire her in his heart. Nor shall he touch (a woman at all) without a particular reason".—*Āpastamba Dharma Sūtram* 1.2.7.6-10. "He shall avoid honey, meat, perfumes, garlands, ointments, love-making, anger, covetiousness, gossipping, playing musical instruments, (hot water) bathing, dancing, singing, calumny, terrorization, to gaze at and to touch a woman, if there is danger of a breach of chastity".—*Gautama Dharma Sūtram* 2.13.16. "Let him (the ascetic) not enjoy any object of sensual gratification". —*Vasishṭha Dharma Sūtram* 10.28.

25. *The Sun's Rays* consist of the ultraviolet or short waves of less than 0.4 m; the visible waves of 0.4 m to 0.7 m; and the infra red or long waves of more than 0.7 m. Short waves about 0.28 m are scattered in all directions by the outer corneal layers. There is therefore much absorption, little reflection and little penetration. A large portion of the waves about 0.5 m in the visible part of the spectrum is reflected from the skin and another large fraction penetrates into the corneum where it is absorbed to a great extent by the hemoglobin of the blood. There is little scattering of the longer waves about 3.0 m which are largely absorbed by the corneum. The ultraviolet rays of the sun, activating the steroids of the skin produces the vitamin D=ergosterol. D regulates

calcium and phosphorous metabolism. The deficiency of ergosterol causes rickets. *Actinic Rays* consist of the electro-magnetic waves, having a wave-length of the order of 350 millimicrons; these are longer wave-length ultra-violet rays which produce chemical changes such as the tanning of the skin and fading of colour in fabrics.

26. Gymnastics (*taoyin*) were practised by extension, flexion, adduction and abduction of the limbs, contraction and relaxation of the muscles, to promote nutrition of the whole body. Every time a muscle contracts, it forces the blood out of its venous capillaries into venules; when the muscle relaxes, it invites the blood into its arterioles and arterial capillaries in incessant demand for oxygen and cell food. Massage (*mo*) by rubbing and kneading the body was performed to increase metabolism, to promote absorption and stretch out adhesions. The influence of massage on fine blood vessels is partly the result of pressure, but also the stimulation of the sympathetic nervous system and the liberation of accetycholine or histamine which cause dilatation of the capillaries. Systematic massage is accompanied by diuresis, particularly if the abdomen is included. The lymphatics in which the flow of the lymp is normally very sluggish also experience under massage, an increase of flow, sometimes of great significance in 'regions' which are the sites of a chronic disease. In the diet Lathyrus Cicera was possibly avoided for it contains only ¼ of the methione and other essential aminoacids and 100 gms of this dry grain contain about 23 mgm of toxic selinium which if used for a long time produces myeletis of the spinal cord. Pisus sativa's oil destroys the vitamin E of other foods and thereby reduces the generating abilities of men and women. Taoists also avoided mustard, garlic and onions. The garlic and onions are sexual stimulants and are rich in phytoncides which are strongly antisceptic. Full moon light is only 1/465000 as bright as sun light. The moon is a miserable reflector. The earth's surface is only 16 times that of the moon, but its cloudy atmosphere reflects 80 times more sun light on the moon than the arid moon reflects on the earth. Greatest distance of the moon from the earth is 252710 miles; least distance 221463 miles. The orbital and axial periods of the Moon are equal; hence a terrestrial observer may see only half of the Moon's surface.

27. Hochi—the sacred union of Breath in which men and women had sexual congress like animals without regard to family ties or social status is attributed to three Changs—Chang Liang d 187 B.C.; Chang Lang 157-178 A.D.; Chang H-siu 188-191 A.D., particularly Chang Tao Liang.

28. *Tantra* may be from *tantra* or *tantri*; *tan* to spread (*L* tenio=*Gk* tonas, tetanas). Tantra (tachio)=textile web with its warp and weft. Tārā Tantra says that Cinācāra (China practice) came from Mahācinā. Tārā=Ekajātā, Lāmā, Rupikā, Cumbikā Lāmā=*Tib* Lha-mo, meaning *Sakti* (*L* socius, companion=*Lith* sekti, to follow). Yogic ūrdhva retas; ūrdhva=*Z* ūruth=*L* arduus, mouting, that is absorbed; semen that is not discharged. Mantras and Dharanis=words of magical power; yantra=talisman; kabaca=amulet; mudrā=pose; mandalas—diagrams; abhisekha=uncted esoteric. Mulādhāra =*L* muliebria; sacrococeygeal plexus. Svādhistana cakra=prostatic plexus. Bodhicitta, sukra, bija—semen. Medhrādāra=sacral plexus. Rajas, padma-bija=menses as well as genital secretion. Latā is the vulva. Kusuma is the flower of the *latā* before the fruit is produced. Bhaga-jhivā=clitoris. Bhagāroha =monsveneris. Bhagāsyam (ās, asya=*L* os)=the mouth or the opening of the vagina. Udīritāṅga=tumescent vulva. Samajāyata samakledah samarasa= simultaneous orgastic discharge. Upa-kaksha (*Gopatha Br* 1.3.9) is the axillary

hair. Kaksha=*Z* kaso=*L* coxa=*O Ger* hausa=axilla. Śikhaṇḍī=Kāka-paksha (crone's wings), the side curls on the temples of adolescent women. Vajra (thunderbolt: hard and erect liṅgam)=*Ch* seng, chich; Padma (lotus)=rati, yoni=*Gk* eurotas, gyne=*L* cunnus=*Ch* muken. Mudrā (seal)=*Pāli* mudda (seal, writing)=*O Pers* muzra (writing)=*Baby* musuru (writing). Mudrā is an expert sexual partner through whose copulative posture and movements she can control the nerves and muscles of her genital region to expel or absorb the discharged orgastic semen. The Khecarī mudrā (coitus reservatus) and vajrolī mudrā (suction of the semen from the vagina through the penile urethra) were the male methods of birth control, practised by the Hata Yogis.

29. The stars and planets shine by day as well as by night in a black sky with great splendor. The earth shines by reflecting sunlight as the moon and other planets do. Earth light is bluer than direct sunlight, because much of it is reflected from the air, and the blue of the sky predominates in the reflected light. Earth light is reflected from the moon during its crescent phases. The earth is full when the moon is new. Full earth light is about 40 times as bright as the full moon light. Both the moon and the earth revolve about their common center of mass which is inside the earth about 2900 miles from its center. Because it rotates and revolves in exactly the same time, we always see the same side of the moon. Daily earth increases in weight by about 10,000 tons from meteorites falling from the sky. The gaseous atmospheric envelope that surrounds the earth consists of the mixture that we call air. It is an invisible odorless, tasteless mixture of a number of gases. It is not a chemical compound. It contains Nitrogen 78.08%, Oxygen 20.94%, Argon .9325% (argon-40 in the air came from radio-actived decomposition of potassium-40), Carbon dioxide .03%, Ozone .00006%, Xenon .000009%, Neon 0.0018%, Helium 0.0005%, Krypton 0.0001, Radon $6X^{10-18}$%. Besides these gases it contains water vapor about 1.2%, and varying amounts of dust and smoke. The atmosphere is divided into several layers. The lowest is called troposphere which extends upwards to about 12 km. It is a region of winds and clouds. In it the temperature drops 18.5 F for every mile that we ascend. Troposphere contains 80% of the mass of the atmosphere. The next layer is stratosphere which extends up to about 100 km from the sea level. Above the stratosphere is the Ionosphere in which the atoms are partly ionized. Its E layer deflects radio waves upto a frequency of 3000 kilocycles, and the F layer deflects shorter waves. Above the Ionosphere at an altitude of about 800 km above the sea level, the atmosphere is called Exosphere where the air is no longer a continuous medium but a mass of molecules that blends into near vacuum of the outer space. All the light that comes from the sun and stars must pass through this air. It absorbs some of the light, refracts it so that the stars are not always where they appear to be, causes the stars to twinkle, makes the meteors visible by frictional ignition. It fends off the extreme ultra-violet radiation from the sun that is destructive to life. It scatters the short wave lengths of the blue light which makes the sky look blue. It transmits the longer waves of yellow, orange and red light which gives the red colour to the sunset and sun-rise. It transmits especially the still longer heat rays, thus permitting the sun to light and warm the earth. It acts as a blanket to prevent the rapid radiation of heat from the earth. From Venus, the Earth would be a blue planet, brighter than Venus looks to us, and the Moon would be yellow and brighter than we see Jupiter. The sun rotates as a ball of gas. Just above sun's photosphere, there is a layer of cooler and thinner gases about 500 to 1000 km thick, that produces

several thousands of dark lines in the spectrum of the sun. From the spectrum analysis, of 103 natural elements known on the earth, 65 have been identified in the sun. Gases of heavier elements may be deep down the surface. The sun is made of the same substances as the earth. The surface temperature of the sun is about 110000F and deep in the interior it must rise to many millions of degrees. Variations in the density of the immense interstellar clouds of dust and gas bring into action gravitational forces for their condensation to form stars. Local variations give rise to planets. The planets that grow by the acretion of dust clouds would be cool at birth. A cool birth does not exclude the later heating and melting of the planetary body by the radio-active elements they contain. There is a bulge in the side of the moon that always faces the earth; it has been pulled out by the gravitational forces of our planet. It is because the moon was torn out of the earth (the Pacific Ocean formed in the depression), and was once much closer to the earth and rotated much faster on its axis. The enormous forces then prevailing molded the moon to its present shape. But these forces as the moon swung out on a more distant orbit and turned more slowly on its axis.

The sun is eclipsed from the terrestrial vieuers when the Moon passes between the Sun and the Earth. During the eclipse of the Moon, Earth passes between the Moon and the Sun and casts its shadow on the Moon. The eclipse of the Sun is seen when the shadow of the Moon falls on the Earth.

In each century 154 lunar eclipses occur of which 71 are total; 237 solar eclipses occur of which 84 are partial, 77 annular, 66 total. On the average 2 total eclipse of the sun visible every third year; totalling averages about 3 minutes. Moon's shadow path intercepted by the earth averages about 100 miles in width. Albedo is the percentage of light reflected from the surface; thus the ratio of light reflected to that received from the sun on its whole illuminated surface. The albedo of the moon is .07, that is, the moon reflects only 7% of the sunlight that it receives; the other 93% is absorbed and heats the lunar surface. The albedo of planets: Mercury .06; Venus .61; Earth .34; Mars .15; Jupiter .41; Saturn .42; Uranium .45; Pluto .16. "Stars though very large and brilliant, due to great distances, appear like twinkling lamp lights—tārā rūpāni yāntha dṛiśyante dyutimanti vac dipavadvi pradrishta tatta nuni sumahantapa", *MBh* 3.37.33. *Guru*=*Z* jourus=*Gk* barus=*L* grauis=*Goth* kaurus, grave, serious. Karṣaṇu, ṣirī=*L* arae=*Gk* araein *Lith* ariu, to plough.

30. Saba-Zios (Zeus, deos=god Śiva) was the Thracian and Phrygian god of fertility. At the winter solstice when nature's reproductive function lies dormant, Thracian and Phrygian women striped themselves of all clothings, drunk wine, ate goat's or bull's meat in which the god incarnates, sang and danced wantonly, wandering in woods and in frenzy, shouting Saba, Saba, indulged in sexual orgies promiscuously to awaken the slumbering god of reproduction and fertility. Phrygian earth goddess Semele=(sasya)-syāmalā =*Pers* zamin. Snake was also the symbol of Saba-Zios.

Above Virgo, riding the lion (Leo),=Umā is Ophiuchus, *bhujaṅgadhara Śiva*; below is Taurus=Nandivṛisha, containing Pleiades=*Kārtikeya*, nursed by seven mothers, and Aldebaran, a red star in the eye of the Taurus—the vermilion-hued *Gaṇeśa*. In later mythology Śiva is the blue-necked (nila-kanṭha) snow and glacier covered mountain god, especially of Kailāsa, and Umā or Pārvatī is the mountainous hot-water spring maiden (Gaurī Kunda). Śiva's trident (triśula) is the lightning fork as with *Mit* Teshub=*Khatti* Tessuba, or the penis symbol with the testicular lobes on both sides.

31. Ashur-bani-pal in one of his inscriptions calls Assur as Assura Mazas, meaning the greatest amongst the gods. Sargon II (122-705 B.C.) had as his standard an archer riding a galloping bull, representing Sagittarius like the Vedic Rudra. Medes called their god Ahura Mazda which their allied kinsmen and successors Achaemenides borrowed. It is very likely that the Assyrians also got it from the Medes (Mandas) whom they conquered and drove away from the upper Tigris region. In the western portion of Sagittarius, their is Corona Australis which surrounds the waist of Median and Acbaemenian Ahura Mazda as in some images of Assur. "Tvam Rudro asuro maho divah, *Rv* 2.1.6. You Rudra is a great Asura of the heaven".

32. Coitus prolongatus with ejaculatio retarda, coitus reservatus with ejaculatio deficiens cause distension of the prostate and seminal vesicles by the accumulated secretions, instead of acting as internal and external secretory organs which losing their tonicity and timely reflex reactions as they and their accessory glands are not properly emptied, induce prostatitis and seminal vesiculatis.

Erotic bas-reliefs in the temple carvings of Khājuraha show very close resemblance to the venereal scenes depicted in Les Moments de la vie privee des Douze Cesars de D'Hancarville. There was also a belief that an elderly man gets vitalized and rejuvenated in intimate contact with a youthful maiden. as a gerocomia. We find in the Bible that to vitalize King David, old and shaken in years, a young virgin Abishag the Shunammite was brought to him to lie in his bosom in order to warm him up, to cherish him and to minister to bis needs (I *Kings* 1-4).

32a. Dadicae (Herod 3. 91; Dadica) old men were killed and their flesh cooked in a caldron was eaten by their kinsmen; their thigh bones were used as clubs. Men over 70 among the Derbiccae (Durvāsas) were killed and eaten by their kinsfolks. Hun Abtelites—Ephthalites—Vetalas used to eat up their dead when half-roasted, especially the skulls whose brain they relished and used as their drinking cups, sometimes bound with gold plates.

32b. In ancient China, 11000 plants were used in the time of emperor Shen-Hing (27 B.C.) of which pomegranate was popular in intestinal worms, rhubarb in constipation, ephedrine-containing ma-huan plant for asthma; musk, aconite, opium, cannabis, bamboo, cloves, garlic, ginger, coriander.

In India Caraka of first century A.D. mentions 500 and Suśruta of about 4th century A.D. 750 plants of which *Soma* (Cannabis sativa as a nervine aphrodisiac in small doses), *ahiphena* (opium as an anodyne, soporific, heart and nerve depressent, aphrodisiac), atibisa (Aconitum heterophylum as a tonic in diarrhea and dysentery, aphrodisiac), *sarpagandhā* (Raufolia serpentina is used to increase uterine contractions to expell foetus, to lower blood prssure, as a sedative in psychic mania), *aśvagandhā* (Withemia somnifera as a tonic, nervine sedative, aphrodisiac and in uterine diseases), chaulmoogrā (Hydrocarpus Castamia, Gynocardia odorata in leprosy), *Sveta* Punarnavā (Baerhaavia repens as a nervous sedative and a diuretic).

Joseph Needham: Science and Civilisation in China, Vol. 2, P. 139-164; 425-431. Holmes Welch: The Parting of the Way: Lao Tzu and Taoist Movement, P. 120-121. Henri Maspero: Journal Asiatique, P. 379-413: Les Procedes de nourir de principle vital. Rovert Hans van Gulik: Erotic Colour Prints of the Ming Period with an essay of Chinese Sex Life from the Han to Ching Dynasty 206 B.C.-1644 A.D. Tokio 1951.

CHAPTER VI

EXEMPLARY NARRATIVES OF ANCIENT INDIA

THROUGH Jātaka stories (547), Mahābhārata and Rāmāyaṇā narratives, Kathā Saritsāgara, based on Bṛihat Kathā of Gunadya, written in Piśāca language in the court of Andhra King Hala 20-24 A.D., Pañca Tantra, Purāṇa (*Lith* pernai=*Goth* fairneis=*OHG* firni=*Gk* pirunoi) tales, anecdotes, lessons in history, morals, ethics, civics and politics have been imparted from time immemorial to the public in entertaining forms.

Aṅgirasas.—The Etruscan (the Etrusci settled in Palestine as Etrureans=*Heb* Iter=*Skt* Itara. *Aitareya Br* owes to *Itara* Mahidāsa; *Ait Ar* 2.17; *Chan up* 3.16.7.) Anc(h)arius settled in Vaisya (Bessi) territory of Vaiśāli (Basilii of Saura-Matae=Saura Mithili) as priests of *Maruttas* (*Kassite* Marutta or Indonesian Murut) as *Aṅgirasas*. Aṅgirasa Usija had three sons—Ucathya, Bṛihaspati and Saṃvarta. Saṃvarta married Marutta Avikṣit's daughter and became his priest. Ucathya married Mamatā and their son was Dīrghatamas. It is said that Bṛihaspati consorted with Mamatā while she was pregnant (*garva-vatī=L* gravida) for which Dīrghatamas was born blind. Bṛihaspati (Brahui =Breuci chief) had a son Kaca (Koch-Baloch=Kutzo Vlachs after whom Kaccha has been named) who when grown up was sent to Uśanas (Ausones) Śukra, the priest of the Asuras and Daityas (*Baby* Dutai=*Keltic* Datti) to learn from him reviviscence=Sañjivani vidyā (*Z* vaeda=*L* video =*Gk* oid=*Ger* wissen, to know; witz, knowledge= *Russ* vidiete, to see). Uśanas Śukra had a pretty daughter—*Devayānī* (on whom gods ride). Being of the same age, Devāyanī and Kaca studied, danced and sang together and they fell in love with each other. But Kaca declined to marry her on the ground that she being the daughter of his preceptor, she was apparently his sister, and their union was reprehensible. Bṛihaspati had two daughters —Devavarṇinī and Romaśā. Devavarṇinī was given in marriage to Viśravas, son of Pulastya who married Ilavilā, daughter of Tṛiṇabindu (Trinabantes). Romaśā to Svanaya Bhavayavya: "Cover me in crouching posture with tightening pressure by holding the nape of my neck (with your hands); my vulva is hairy (long luxuriant pubic and axillary hairy growth is associated with hyperproduction of ovarian and adrenal androgens; romaśā=*N Pers rum*=pubic hair) like an ewe (*avi*=*Lith* avis=*L* ouis=*Gk* ois=*Russ* ovisa=*OHG* awi) of Gāndhāra", *Rv* 1.126.7. Bhavayavya affirms: "Healthy, very healthy this Kasīkā (Kuśikā, a Hunnish tribe) holding my waist by her legs is giving me hundreds of intense coital enjoyments with orgastic discharges."—*Rv* 1.126.6. Though Dīrghatamas (*dīrgha*=*L* durare+*tamas*=*L* temere, temes, blind) was born blind, he was cured of his blindness. And though married to Pradveśī, he indulged in gross immorality and seduced the wife of his younger brother Saradvant Aucathya. His wife Pradveśī and his younger brother Saradvant outraged by his immoral conduct, bound him and set him adrift in the Gaṇgā on a raft and he drifted some 115 km where the Anava (later known as Aṅga) King Bali picked him up. There consorting with the slave girl Auśinārī of Bali's wife Sudeṣṇā, Kakshivant was born. When returning home (*dama*=*Gk* domos=*L* domus=*Fr* domicile) from a residential school, Kakshivant became fatigued on the way and fell asleep in a forest. Svanaya Bhavayavya with his wife Romaśā and retinue was taking a walk in the forest to amuse himself. Svanaya seeing Kakshivant endowed with charming beauty, robust health, gave his daughter to him, decked with ornaments, chariots, steeds, cattle, goats and sheep as a cross cousin marriage.—B. Devatā 3, 142-147. Kakshivant had a daughter Ghoshā. Ghoshā suffering from a bad vulvar disease remained an old maid (amājuraś *Rv* x.39.3). Without a husband and a son she became very depressed; she prayed to *Aśvins* (morning and evening Venus). *Aśvins* entering into her vagina (bhagāntare), cured her of the deformation and made her vagina beautiful (subhagā) and she became mother of Suhastya.—*B. Devatā* 7.42.47. Marutta (Indonenesian Murut) supported Duṣyanta (Indonesian Dusun) to possess the Puru kingdom (Vāyu P. 99-3-4). Duṣyanta in a hunting trip met Śakuntalā (princess of the Śakunis in the hermitage of Kanva on the Mālinī=Chukā—the western tributary of the Sarayu, 50 km west of Haridvāra flowing through Shaharanpur), and consorted with her by Gandharva (mutual libido) rite of marriage. But when Śakuntalā went to Duṣyanta after a child was born to her, the marriage was disowned by Duṣyanta. However, it is said that her son Bharata succeeded Duṣyanta. Pallid (*palita* =*L* pelleo=*Gk* pelios=*OHG* fale=*Lith* patvas) Dīrghatamas =Dargha+Tamasa consecrated Bharata with coronation (Ait. Br. 8.23). It is likely that Bharatas conquered the Purus (*Rv* 7.8.4). Bharatas allied themselves with Māndavyas (Mandubii) whose princess Māndavī their chief married (*Rām* 1.73.4). Bharata's wife killed her children in an insane feat, as she was taunted by Bharata of infidelity. Bharataasked Marutta to give him a successor and he gave Bharata, an offspring of Mamatā and Bṛihaspati, known as Vidathin Bharadvāja, deserted by both parents, but brought up by Marutta (*Matsya P*; 49.12-28). It is likely that the Brittas was accompanied by Vagienni= Vajjis who settled in Vaisāli, and by cross-cousin marriage, Bharat+Vajin, became known as Bhardvājas. Bharadvājas succeeded the Bharatas. To Bharadvājas is ascribed the sixth Mandala of Rigveda. A Bharadvāja became the Purohita of Divo (bright) Dāsa (Daci) of Kāsi. Another

Bharadvāja is connected with Purava King Ajamiḍha. After Bharata's death, Vidathin Bharadvāja was consecrated. Vidathin Bharadvāja had five clans—Suhotra, Sunahotra, Rijisvan (Vaidathināya Rigiśvā, *Rv* 5.29.11), Nara (Neuri=Wends) and Garga (Gorgiās). Nara's son was Saṃskṛiti; and Garga's son was Sibi (*Matsya* P. 49.33-37). Pāyu Bharadvāja was associated with Atithigva Divodāsa whose sister was married to Saradant. Bhadrā, daughter of Kakshivant, was married to Puru King Vyusitasva. After Vyusitasva's death, Bhadrā by thinking of the sexual pleasures with her dead husband on about 8th to 10th day after menstruation, that is, at the time of ovulation, could experience sexual orgasm and gratification.—*MBh* 1.116-34. Kuṇi Gārgā did not want to get married as she did not get a suitable partner, she emaciated herself by fasting and abstinence. She was told by Nārada that an unmarried woman was not entitled to heaven. She then declared: "Whoever will marry me, I shall give him half of my wealth". Then Gālava married her.—*MBh*. *Salya* P.53. Circasion Dargha+Tamasa.

King Rathaviti Darbhaya chose Atreya Arcanānas and his son Śyāvaśva. At the sacrifice Śyāvasva seeing the Rathaviti's pretty daughter Śaśiyasī asked the king to give Śaśiyasī to him as a sacrificial fee. The king asked the queen's opinion who was against this kind of matrimonial alliance. The king after conferring with his wife refused him, saying that Śyāvaśva was not worthy to be his son-in-law. But the heart of Śyāvaśva returned not from the girl, though rejected by the king when he returned after the sacrifice was over. Śaśiyasī loved Purumilha Taranta (Taranchi of Ili region) who was however indifferent to her. She selected Śyavaśva (darkish horse) as an agent to plead for her. He pleaded well, and they were married, and Śyāvaśva was well-rewarded for his service (*Rv* 5.61.5; *Bd. Devata* 5.63). Yet Śyāvaśva felt miserable. "I have also not obtained the maiden beautiful in all limbs. O Urmyā (Oh night) carry my hymn of praise to Darbha; O goddess, become the chariot of my songs. Speak of me to Rathivati at the moment of pouring over the libation; tell him that my love for his daughter is not extinguished" (*Rv* 5.61.17-18). And Śaśiyasī and Śyavaśva were married (*Bd Devatā*: 79).

Haihaya (Hio-Hui) Saryatas ruled in Anārta (Kathiwar). Haihayas comprised five clans—Saryatas, Bhojas, Avantis, Vitihotras and Tālajaṅghas (*Matsya P.* 43.33-39). They befriended the Bhṛigus (Bryges) who settled in Cutch, known as Bhṛigu Kaccha which shortened into Broach. Their capital was Kusasthali (Dvārakā). Saryata gave his daughter Sukanyā to Bhārgava Cyavana (Sabini). Cyavana and Sukanyā had a son Apnavana and a daughter Sumedhā. But Kusasthali was destroyed by Punyajana Rāksasas [Ruks (fair-colored)-Asae]; they extended over Malwa upto the mouth of the Narmadā. Kārta Vīrya Arjuna made Mahiṣmatī on the Narmadā his capital, conquering the Karkata Nāgas. Bhārgavas losing their protection by Haihayas, rather being harrassed by them, fled northwestwards, sought the aid of their western powers—Gādhis (*Kassite* Gandi or Gaddas, Gadhis of Kangra) and Ikshvākus. Ricika, son of Bhārgava Urva, paying 1,000 fleet horses as dowry, wedded Gādhi's daughter Satyavatī. Ricika and Satyavatī had two sons—Ajigarta and Jamadagni. Jamadagni was a renowned warrior (*vīra*=*L* vir=*Lith* viras=*Goth* wair=*Celtic* viros); he married Renukā, the daughter of Trayyāruṇa Triśanku, called Prasenjit (*MBh* 3.97.2). They had a son Rāma—a great fighter, with battle axe (*parasu*=*Gk* pelekus=*Sumer* pilakku)—for which he was called Parasu-Rāma. Renukā, seeing Citraratha, ruler of Mārtikavata (Merta in Marwar) sporting with his consort, became wetted (klinnā) in her organ through excitement and was sweating (*sveda*=*Z*

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xvaeda=*Gk* idros=*L* sudor) for which she was reprimanded by Jamadagni. When Pradyumna, noted for his beauty, was serving some ladies with tasty (*svādu*=*Gk* hedos=*L* suavis) food (bhojya=*Gk* phago), lotus leaves on which they were sitting on stuck on their buttocks, with the sticky Bartholinian glandular and cervical secretions in sexual excitement. Haihaya Arjuna was a great conqueror; he was called Sahasra-bāhu, having thousands in arms (*Matsya P.* 68.10). Arjuna was helped by Datta Atreyas. He became known for his conquests as a Samrāj and a Cakravartin (*Vāyu P.* 94.9.23) from the mouth of the Narmadā to the foot-hills of the Himalayas where Apava Vasiṣṭha, the Purohita(=*L* praesideo; puro=*L* prae: in front; āhita=āsita=*L* sideo=seated=ministerial president) of Tryāruṇa Triśaṇku lived, and his residence was there destroyed (Vāyu P. 34-35). Jamadagni was killed. Gādhi's son and successor Visvaratha was dethroned and he became a Purohita, known as Visvāmitra. Triṣaṅku of Ayodhyā also lost his throne, and both Kānya Kubja and Ayodhyā were overran by the Haihayas as they fought together. But Arjuna was killed by Rāma by his axe, and Rāma became fugitive. Tryyāruṇa Triśaṅku's=Trasdasyu's (*Rv* 5.27.1-3) son was Hariscandra. Hariscandra married Uśinara Śivi's daughter Śaivyā. They had a son Rohita. To secure Varuṇa's favor to win back his ancestral throne, he promised even to sacrifice his only son to the deity. But it was not to the liking of Rohita. Rohita purchased Śunaśepa from his father Ajigarta=Jaziges who became so impoverished and demoralized by Haihaya raids and devastations that he not only sold his second son for the sake of money but bound him for the sacrificial offering and was ready even to sacrifice him himself if more money was offered for the purpose. Visvāmitra tried as Hariscandra's Purohita to reinstate him on his ancestral throne. But when Visvāmitra came to know of his sacrifice, he rescued his sister Satyavatī's and Ajigarta's son Śunaśepa, adopted him as his son, calling him Devarāta. He also enslaved Hariscandra, his wife Śaivyā and their son Rohita for their inhuman cruel attempt of a human sacrifice to propitiate divine favour. In the meantime Ayodhyā throne was occupied by Bāhu (Boii). Devaraj Vasiṣṭha who married Arundhutī, sister of Kanva Narāda and Parvata, became his Purohita. Haihayas reinforced by Śakas (ℨ Sako=*Chin* Sek), Kambojas, Pāradas (Saka Tyai ,Paradraya=Afridi), Pahlavas (Pārthavas=Parthians) attacked NW India and drove Bāhu into exile. Haihaya-Vitihotras defeated Divodāsas at the junction of Gaṅgā and Yamunā; they entrenched themselves in the area. Divodāsa got the help of the Bharadvājas and built Bārāṇasi at the confluence of the Gaṅgā and the Gomatī. In the meantime Sagara (Sagartii=Asagarta) quarrelled among his confederates, assumed supreme power under the guidance of Atharvanidhi Vasiṣṭha and drove the Kambojas, Pāradas and Pāhlavas away. Pratardhana=Vatsa=Ritadvaja, son of Divodāsa married Asva(Asae)-sena's daughter Madālashā. Their son was Alarka. Pratardhana with the help of Asvasenas, Bharadvājas drove the Haihaya-Vitihotras. Vitihotra chief took refuge in a Bhṛigu asylum; and as the Vitihotra chief was declared a Bhṛigu, he was saved from molestation and he became incorporated among the Bhṛigus. Pratardhana was helped by Atreya Anusuyā. Rākṣasa Kḥemaka occupied Bārāṇasī which was however recovered by Alarka. Alarka was helped by Lopamudrā (*Vāyu* P.92.67). Lopāmudrā and Agastya were contemporaries of Trasadasyu (*MBh* 3.98). Yaskas and śunakas were the descendents of Vitihotras. Śunaka adopted Gritsa Mada to whom sixth Mandala of the Rigveda is ascribed. To Śaunaka, a contemporary of Yāska Rigveda Pratisākhya and Anukramanī are ascribed.

Nala of Kusa (Khasa=Kassite descent) was a fine-looking honest young king of Nishāda (Pariyātra region). Damayantī, daughter of Bhimasena of Vidarbha (Berar), was a very handsome princess with smiling (*smera*=*L* mirus=*MGH* smieren=*Russ* smick) face and pearly lustrous teeth (*danta*=*Lith*, *OPrus* dantis=*OHG* zand=*Ger* zahn=*Gk* odont). They by exchage of mutual admiration through friendly *Haṃsas* (*Haṃsakāyana*, Haṃsa-mārga) fell in love with each other. Damayantī became the mother of one son Indrasena and one daughter Indrasenā. Nala by gambling on dice with his brother Puskara lost his kingdom. Nala and Damayantī were exiled. Roaming in the wild forested region of Vindyā Hills, the devoted lovers became separated from each other. Damayantī went to her father, and Nala became the charioteer of Rituparṇa of Ayodhyā. Damayantī announced that being deserted by her husband and knowing not his whereabouts, she would choose in a Sayaṃvara gathering her new mate and husband. Rituparaṇa, accompanied by his famous charioteer Nala came to the festival. Damayantī recognizing Nala became reunited with him. Nala also regained his kingdom by defeating Puskara in a new game. Indrasenā became married to Mudgala (Magelli=Moggali, Moggoliana of Rājagṛiha of Mogallī descent), the Pañcāla ruler. Indrasenā Mudgalani was a daring charioteer (*Rv* x.139.2).

Matsya (Mattiachi) *princess Satyavatī* was ferrying a boat on the Yamunā. Parāsara (Parsiraei) became her passenger. Enamoured of her beauty and sexual intoxicating odor (the mixed cervical, vaginal and Bartholinian glandular secretions of some women, especially during her ovulation period, have the smell of shrimps, for which she was called Matsyagandhā). Parāsara made amorous advances towards her. The product of this temporary passionate outburst was Kṛishṇa Dvaipayāna Vyāsa (L vates, poet, prophet), born on a sand bank of the Yamunā. Santanu (Santones chief), king of Hustināpura, wanted to marry her. But the Matsya king demanded the assurance that he could only marry her on condition that her son alone would succeed Sanantu on the throne, replacing Devabrata Viṣma, the crown prince. As Santanu hesitated to make such a solemn promise, Devabrata Viṣma, even renouncing marriage, abdicated his claim to the throne, brought the Matsya princess for his father. Satyavatī became the mother of Vicithravīṛya and Citraṇgada. It is said that Parāsara (Parsiraei) was borne by Adriṣyantī, widow of Sakti=Sogdi or Sogdian =*Ir* Sugdu. =Śughdikī=Śulika—Culika.

Sāvitri was a very pretty adolescent princess of Aśvapati of Madra (the lower Punjab). Madra women were noted for their beauty and physical charms. Finding not a suitable husband, she went abroad to select one if she could. She fell in love with exiled Salva (Salluvi) prince Satyavan, son of blind Dyumutsena. When Nārada heard of her choice, he said that as Satyavan was likely to be shortlived, it was better for her to make another selection. But she retorted that in love, one cannot make two choices. Madra king Aśvapati (Usipetes) and the queen Mālavi finding their daughter Sāvitri determined, did not raise any objection against her selection, rather facilitated her union with Satyavan. Sāvitri by her personal efforts made Satyavan long-lived, regained the ancestral Salva (Mt. Abu region) throne, and recovered the eye-sight of her father-in-law.—*MBh Bana* 249-252. *Kevalo*=*L* caelebs, self-centred.

Pradyumna was kidnapped when a child by Sambara (Cimbri) and kept with Māyāvatī who was also abducted by the Sambara chief. Pradyumna, at the instigation of Māyāvatī, killed Sambara, and brought Māyāvatī as his wife to his parents—Śrī Kṛishṇa, the chief of the Yādava confederacy (comprising Yadus=Yautiya, Satvatas=Sayots, Andhakas=Andkhui, Bhojas=Voguls, Kukuras=Kukirwash, Vrishṇis=Bur-sin, Tittiris=Tatars, Surasenas =Siracena, Ugra-senas=Ugrian=Ugra fighters, Prithus—

Pārthava=Parthians, Madhus=Maedi, Haihayas=Hiao-Hui, Kanaka=Kanaks), and his mother Rukmiṇī.

Ushā, daughter of Asura Bāna (Ashur-bani-pal[31] 688-626 B.C.) was in love with Aniruddha, son of Pradyumna. Ushā told of her amours with Aniruddha to her comrade Citralekhā and asked her to induce Aniruddha to visit her frequently. Citralekhā brought Aniruddha to Sonitapura for the union of the lovers. But Bānasura imprisoned Aniruddha. Śrī Kṛishṇa knowing about it defeated Bānāsura and brought Ushā and Aniruddha to Dvārakā. Kṛishṇa was brought up by Nanda *Ghosha*. *Ghosha Palli* was of Abhira (Avar) origin. Kṛishṇa, after killing his maternal uncle Kaṃsa, enthroned his grandfather Ugra-sena=Ugrian chief. Ugrians were called Ugra in Russian Chronicles. Mixed erotic dances, dalliances, drinking, sports and sexual promiscuity were customary with the pastoral semi-nomadic Ābhiras, Āndhakas, Satvatas. The autumnal full moon dance festivals (Kārtikeya Pūrṇimā Rāsa Lilā) have originated from these cowherds (gopālas). Ugrāudha Brahmadattas ruled the region from Mathurā to Mithilā, wiping out Pañcāla and Kāsi kingdoms. Two ministers—Pundarika and Gālava Babharavya—of Brahmadutta made Rik Collection and Babhravya composed Śikśā and Kramapatha of the Rik Samhitā.

Kuru-Pañcāla and Mithilā.—Ayoda Dhaumya had three disciples—Upamanyu, Pañcālya Aruni Uddālaka and Veda. Janamejaya made Veda his Upādhāya—preceptor (*MBh* 1.3). Indrota Daivapa Śaunaka performed Aśvamedha ceremony for Janamejaya with the assistance of his son Dṛiti Śaunaka. Svaidāyana Śaunaka was making a large assembly of learned men in Naimishāraṇya. Uddālaka had the reputation of learning. Uddālaka had a son begotten of his wife by a disciple at his appointment—Śvetaketu (Uddalakah Śvetaketum janayāmāsa śishyatah, *MBh* 12.34.24). In the presence of Uddālaka and Śvetaketu, when a

Brahmin soliciting for the favour his mother, caught hold of her hand and they went together, Uddālaka finding his son agitated, calmed him by saying that it was the natural law, and not to bother himself with it: "A woman is never satisfied with one mate; like a rutting cow she has an ardor for unions with various mates".—(*MBh* 1.122.) Uddālaka was a sexologist, *Br. Ār. Up*, 6.4. Uddālaka's favourite disciple was Kauśitakī Kahoda to whom he gave his daughter Sujatā in marriage. When Sujātā became pregnant, she asked her husband Kahoda to earn some money for their needs. Kahoda then went to the court of Janaka Ugrasena and there in a debate, defeated by Vandin, he was drowned. Sujātā gave birth to a son Ashṭavakra (crooked in 8 places, possibly because he was suffering from rickets or acromegaly). Śvetaketu and Ashṭavakra were of the same age and they studied together. When they reached adolescence, learning of the drowning of Kahoda in the hands of Vandin, went to the court of Janaka Ugrasena Pushkaramālin. There Ashṭavakra defeating Vandin in a debate had him drowned. Śvetaketu married Suvarccitā, daughter of Devala (*MBh* 12.218.42). Ashṭavakra asked Vadanya to give him his daughter Suprabhā in marriage as he was much attracted by her beauty; Vadanya had Ashṭavakra's character tested by temptations by other women, and when Ashṭavakra was found steadfast to his daughter, Suprabhā was married to Ashṭavakra, *MBh* 13.19. Uddālaka had a disciple—Vajin (Vagienni=Pāli Vajji) Brahmarāt Yājñavalkya who compiled the Vājasaneya Saṃhitā=the White Yajus or Yajurveda. Devamitra Śākalya, Rathitara Śakapūrṇa, Vāskali Bhardvāja compiled and edited three recensions of the Rik Saṃhitā of which Śākalya's is only extant. Janaka(=father, the title of the ruler of Mithilā) of Videha called a gathering of many learned men of Kuru-Pañcāla and offered a number of cattle whose horns were decorated with golden caps to the best theologician (Brahmishtha). Brahmarāta Yājñyavalkya stood and directed his disciples to take possession of the cattle, as he was the best authority on the subject. Yājñavalkya was challenged by Aśvala, Artabhāga of Jaratkaru (or Kuru Sarpa) descent, Bhujjyu of Lahya descent who asked Yājñavalkya: "Where the Parikshitas have gone to! (Ka Pārikshitā avabhan! the rule of Parikshita and his descendants—Janamejaya, Śatanika, Aśvamedhadatta and Adhisima Kṛishṇa— is long past); Ushaṣṭha, son of Cakra; Vācaknāvī Gārgī; Śākulya in the debate forfeited his life and his bones carried by his disciples were looted by the robbers, thinking them to be treasures (*Br. Ar. Up* 3.9.26; Vāyu P. 60.32-62). Yājñavalkya's disciple was Asuri; Asuri's disciple was Pañcasikha of Parāsara descent. Sulabhā learnt her Sānkhya philosophy from Pañcasikha and had discussions with Janaka Dharmadvaja. *MBh* 12. 121. With the downfall of Parikshitas, Mithilā superceded Kuru-Pañcālas in religious ceremonial magic rites, metaphysics, philosophy and law.

Ābhiras (Avars) coming with Śūdras (*Mark* P. 57.35; *MBh* 9.31.1) through the Sindhu and Rajputana became the military chiefs of the Śakas of Nāsika and penetrated upto Ujjayinī where conquering with the aid of Kalkis (Khalkha of Mongols) Haihaya Vetāla Tālajaṅgha Vitihotras (Ephthalites) established the Ābhira Ghosha Pradyota Dynasty. Ugras—Andhakas, Licchavis=Nicchavis=Niuchi of Golden Tatars—occupied the region from Mathurā to Mithilā. Śatānika of Kauśāmbī befriended Ugra-senas of Mithilā and married their daughter Mṛigāvatī (*MBh* 1.59). Mṛigāvatī was the third daughter of Chettaka, the Licchavi archon of Vaiśālī and Mithilā. Her other sisters Prabhāvatī was married to Udayana=Udena (of Udes tribe) of Vitabhaya of Bādari to the north of Cutch in Sindh; Śivā to Abhira Cando Pradyota of Avanti; Chettāni to Śreṇika (called because he introduced the representation of Śreṇis—

the trade guilds in his administrative council) Bimbisara of Śiśunāga dynasty of Rājagṛiha, and her son was Ugraput (*Aṅgu Nikaya* 1.26) Kunika Ajātaśatru; Dhārinī Padmāvatī to Dadhi-Vāhana (Dadikes, Herod 8.91, a branch of the Tajiks) of Campā. Chettaka's sister Videhadattā Priya Karini Triśalā was married to Nāta-putta=Jñāti-putra Siddhārtha Nandi Bardhana (Nandi, a Hamitic tribe) of Kāsyapa gotra of Kundagrāma near Vaisāli, though he was married to a Brahmin wife Devadattā; Devadattā giving birth to Mahāvīra died soon after, and Mahāvīra was reared by his step-mother Triśalā. Śatānika attacked Campā. Dadhi-Vāhana fled. But his wife Padmāvatī was raped, and she committed suicide; her daughter Vasumatī Candanā fell into the hands of the invaders, and was sold as a slave to a banker Dhanavaha of Kauśāmbī. Dhanavaha's wife Mulā became jealous of Candanā and cut off her luxuriant locks of hair. In this condition she served food to Mahāvīra, and became a Samanā=*Skt* Śramaṇā. Shaman priests of the Tungus are of both male and female sex; Niu-chi belonged to the Tungus tribe. Mahāvīra was married to Yasodā of Kundin (N Satrap Kaundina) Gotra, and had a daughter Priya-darśanā Anojjā who was married to Jamali who helped him in his mission. At thirty after the death of his parents, he left home and wandered for 12 years in wild Rāḍhā and in Vajji-bhumi. During the rainy seasons, he remained in Vaiśālī, at Rājagṛiha, Campā, Mithilā and Śrāvastī. At 42, he became a Kevalin at Ironbhika on the river Rijupalik near Pārshvanātha Hills. At 72 he died in the house of King Hastipala's scribe at Pāvāpuri near Rājagaha in 467 B.C. when Abhira Ghosha Palaka, son of Pradyota, was anointed as king at Avanti. Śatānika's court painter was dismissed. He went to the Abhira court and presented Pradyota=Pajjota the life size portrait of Mṛigāvatī, painted by himself. Infatuated by her beauty, Pradyota demanded from Śatānika to send his seductive consort to him, or he would capture her by force. Śatānika fought in defence; but he died suddenly of cholera. Mṛigāvatī made a truce with Pajjota that she would go to him of her own free will. In the meantime she begged help of her brother-in-law Udayana of Bādari who defeated Pajjota, and made his young son Udayana by Prabhāvatī the king of Vatsa. But young Udayana was captured by Pajjota and taken to Avanti. Mṛigāvatī became a Jaina nun. Udayana however managed to escape with the connivance of Pajjota's beloved daughter Vasāva-dattā. The young lovers were married at Kauśāmbī. Pajjota became reconciled. Moreover Udayana also occupied the throne of Avanti as the infuriated mob of the city killed Pajjota's son Palaka for his oppresive rule. Ajātaśatru annexed Vaiśālī and Campā, and fought over parts of Kāśi which Prasenjit gave as a dowery to Kosalādevī, wife of Bimbisara, but after Bimbisara's death refused to cede it. Ajātaśatru however got Kāśi territory as a dowery by marrying Prasenjit's daughter Vajra-kumārī. Ajātaśatru was succeeded by his son Darśaka=Nāga Dasaka. Udayana managed to marry Darśka's sister Padmāvatī, and fostering a palace revolution had Darśka dethroned in 477 B.C., and thus founded a state, extending from the Gulf of Cutch to the Bay of Bengal in the heart of Āryavarta, and removed his capital to Kusumapura, later known as Pātaliputra, founded by Ajātaśatru as a place of strategic importance. Udayana brought under submission by a military expedition against Ugra-Āyudha Brahmadattas who were in possession of parts of Kāśi and who instigated a rebellion against him.

In Campā there was a king Dadhi-Vāhana. His wife was Abhayā. There was a young Jaina merchant in the city called Sudarśana. His wife was lovely Manoramā. Sudarśana had an intimate friend Kapila, the royal priest. Kapila praised the virtues and good looks of his friend Sudarśana to his wife Prabhā. Prabhā desiring intimacy with Sudarśana sent her slave girl to Sudarśana on a day when her husband had gone to another town on royal business, to say to him that her husband was lying sick. Sudarśana hurried to Kapila's house, and enquired about his friend. "He is asleep in his room. Please let us go there", said Prabhā. Finding the bed empty and Kapila not there, he reproved her: "Wife of my brother, why do you fool me like a child"? "Why, have I no right over my husband's friend?", she said, baring her breasts and pubes, stripping herself of her garments. "Since I have heard of your accomplishments and beauty from my husband, a passionate flame has been burning in me for close union with you. Calm my ardor by your ambrosial embrace, or I shall be consumed by that unquenchable passion. You are so good to others. You can not be unkind to me". Sudarśana excused himself, saying that he was impotent. In the spring festival gathered together Dadhi-Vāhana and his wife Abhayā; the priest Kapila and his wife Prabhā; Sudarśana and his wife Manoramā with her 4 lovely children; and other guests in their fine garments. Prabhā asked her friend Abhayā about the pretty woman with 4 playful children. Abhayā told Prabhā that she was the wife of the banker Sudarśana and they were their children. Prabhā exclaimed: "Good heavens, how clever are the wives of bankers and merchants. Her husband is impotent. How did she get these children? A lotus growing in the sky!" When Abhayā asked her to explain, Prabhā related her escapade with Sudarśana. Abhayā laughed at Prabhā and teased her saying: "You have been tricked by the guile of that cunning fellow, O silly girl". "I might have been tricked by that merchant, but I challenge you to show your cleverness in love games. I shall acknowledge my defeat if you can induce Sudarśana to enter into amorous sports with you". The queen Abhayā accepted the dare. Returning home, she consulted with her confidential nurse Panditā. She counseled her to desist from such a foolish and dangerous adventure. But Abhayā insisted on it as she had bet on it with Prabhā. Sudarśana was abducted in a female garb in the queen's apartment. Abhayā tried to seduce him by voluptuous dances and songs and the captivating charms of her body. "Queen, I beg you to excuse me. I must not lose my heaven for earthly temptations". "A fool you are, Sudarśana. What for, have you got beauty and youth? A few moments of enraptured loving embraces are more heavenly than heaven itself. And the reververations of those delightful fleeting moments are more lasting than eternity. I give you heavenly joy. Take it". But Sudarśana's obduracy drove Abhayā to threats: "This vow of yours shall not block fate. Take this heavenly delight of my body, or go to the hellish torture of execution". Abhayā shrieked. Guards came. She told them to fetch the king. She told the king: "This fellow has forced his entrance here to outrage me". The king asked Sudarśana what he had to say. Sudarśana remained silent. Dadhi-Vāhana ordered Sudarśana to be on a stake. The executioners set Sudarśana on the back of an ass, with a string of Nimba leaves on his forehead, his body covered with soot, with the shouts—runner after other men's wives—and went in a procession in the sun (sūrya, svar=*Z hvar*=*Gk* helios=*Lith* saule=*Goth* sauil=*L* sol=*Fr* soleil). Manoramā, finding that her husband did not return home, went to Kapila's house. There Kapila, Prabhā and Manoramā saw the assembly and Sudarśana on the ass. Prabhā confessed everything to Manoramā who brought it to the notice of Kapila. Kapila went to the king, told his wrongs to innocent Sudarśana. Sudarśana to the exultant shouts of citizens, praised by poets, to the beat of festal drums, returned home. The king took the Jaina vows. Abhayā[15] got the blame (nindā=*Gk* oneidas=*Lith* naids) and hanged herself.

Somadatta with the title of Agniśikhā lived in Kauśāmbī.

His wife was Vasudattā. Vararuci was their son. His mother supported him by severe drudgery. He lost his father when a child. One day two youths—Vyāḍi and Indradatta—disciples of Varśa of Pātaliputra, became their guests. Vasudattā, sobbing, said to Vararuci: "There, my son, is your father's friend Bhavānanda, giving a dramatic entertainment". Vararuci went with the guests. And after returning home he repeated the whole of the performance to his mother. The guests were surprised. Then they in order to test Vararuci recited a Pratiśākhya. Immediately Vararuci repeated the whole in their presence. They took Vararuci to their preceptor Varśa. Varśa and Upavarśa were the sons of Sankara Śvāmin of Pātaliputra. Upavarṣa had a beautiful daughter—Upakoṣā. Vararuci and Upakoṣā fell in love with each other and they were married with the consent of Varśa and Upakoṣā's parents. Pāṇini, one of Varśa's pupuls, wrote a new grammar, defeated Vararuci ,exploding his Aindra Grammar[15a] whose adherents were Vyāḍi, Indradatta, Vararuci=Kātyāyana. Leaving all his wealth in the hands of the merchant Hiraṇyadatta for the maintenance of Upakoṣā, Vararuci went out to acquire new knowledge. One day when spring had come, Upakoṣā, very youthful and pretty, though somewhat pale and thin, when coming out of her bath in the Gaṅgā, Nanda's minister cought hold of her hands; but with great presence of mind, she said to him: "Dear Sir, I desire this as much as you do, but I am of a respectable family, and my husband is away from home. How can I act thus? Someone might see us and do both of us harm. Therefore come to my place house in the first (*agra*=*Z* agro=*Lith* agras) watch of the night of the spring festival when the citizens are all excited". When she had thus pledged herself, the minister let her go. But she had not gone many steps farther before she was stopped by Nanda king's domestic priest. She made similar assignment with him also for the middle (*madhya*=*L* medius=*Gk* mesos=*Goth* midja=*Russ* mejdu) watch of the night. A little further, the chief magistrate, accosted and detained the trembling (*tras ana*=*L* tremere=*Gk* tremein *Lith* trimti) lady. Then she made similar assignment with him for the third (*tritiya*=*Z* thris=*Gk* tritos=*L* tertius *Russ* trimti=*Lith treszias*) watch of the same night. She went home trembling and told her maid servants the arrangement she had made for a woman of a good family. Next morning she sent a maid servant to the merchant Hiraṇya Gupta for some money in order she might perform some religious ceremony. Hiraṇya Gupta came and said to her in private: "Let us be united in lovers' bond (bandhana, bandha=*ON* band=*Goth* bandi=*It* banda). That will easily release your money". As she had no witness to testify the money deposit her husband had made with the merchant, she made a fourth (*caturtha*=*Gk* tettares=*L* quattuor) and last assignment with him for the last watch of the night (*nak*, *Rv* 7.71.1 nakta, nisa=*Sindi* nag=*Z* notchur =*Gk* nyks=*L* nox=*Russ* noche=*Lith* nachtis=Ger nacht). On the day of the spring festival, Nanda's minister came in the first watch of the night in gorgeous array; when he had entered, Upakoṣā said to him: "I will not receive you until you have taken your bath; so go in and bathe". The minister was taken by the maid-servants into the dark inner chamber. There they took out his under-garment and jewels and they give a single piece of rag and they smeared him from head to feet with soot, pretending it was a unguent. The maids then said to the minister: "Here is the king's priest come, a great friend of Vararuci, so creep into the box", and they bundled him into the trunk and then they fastened it outside with a bolt. The priest was also brought into the dark room on the pretence of bath, and being rubbed with lamp-black until in the third watch the chief magistrate arrived. The maids terrified the priest with the news of his arrival and pushed him into the trunk like his predecessor. The magistrate was similarly pushed into the trunk and fastened from the outside. These three being shut up inside the box, Upakoṣā brought a lamp (rocana, locana=*Gk* lognos=*L* lucarna=*Ger* licht) into the room and making the merchant enter it, said to him: "Give me that money which my husband deposited with you". "The money shall be yours, after you yield your charms to me". Upakoṣā, calling the attention of the people within the trunk said: "Hear, o ye gods, the speech of Hiraṇya Gupta". And Hiraṇya Gupta on the pretext of a bath was made naked (nagna =*Z* magna=*Sog* bgnak=*Osset* bognag=*Gk* gymnos= *Russ* nagoi=*Ger* nackt=*L* nudes=*Lith* nugas) and his body rubbed with the lamp (*rocana*, *locana*=*Gk* lognos=*L* lucerna) black. And with the approaching dawn, he was pushed out of the door. Hiraṇya Gupta somehow reached home, accompanied by howling and biting dogs.

Early in the morning Upakoṣā went to the royal palace and told the Nanda king that Hiraṇya Gupta was trying of depriving her money, deposited with him by her husband. The king had the merchant summoned who said: "I have nothing in my keeping belonging to this lady". Upakoṣā then said: "I have witnesses, my lord. Before my husband went, he had put the household gods into a box, and this merchant had admitted the deposit in their presence. Let the box be brought here and ask the gods (*devas*) yourself". Having heard this, the king in astonishment ordered the box to be brought. When the box was brought, Upakoṣā said: "Relate truly o gods what that merchant said and then go to your own house; if you do not, I will burn you or open the box in the court". Hearing this the men in the box, trembling with fear, said: "It is true the merchant admitted the deposit in our presence". Then the merchant being utterly confounded confessed all of his guilt. But the Nanda king being unable to restrain his curiosity, after asking permission of Upakoṣā, opened the trunk in the court by loosening the fastening and three men were dragged out of it and were with difficulty recognized by the king and his ministers. The whole assembly then burst out laughing, and the Nanda king asked Upakoṣā the meaning of all these mysteries. Upakoṣā explained the whole story. Then all those coveters of their neighbour's wife were deprived of their wealth and banished from the kingdom. The king and his ministers expressed their approbation of Upakoṣā's conduct and the Nanda king said to her: "Henceforth thou art my sister". Varśa and Upavarśa congratulated their niece and daughter. When Vararuci returned, he was made a minister. But this antagonized the premier Sakatāla. Nanda died in Ayodhyā. He was succeeded by Yoga Nanda. Yoga Nanda at the instigation of Vararuci threw Sakatāla into a dark dungeon. Yoga Nanda then returned with his army and Vararuci to Pātaliputra. But Vararuci being suspected of an intrigue with his queen was ordered to be executed, and Sakatāla was reinstated as the prime minister. When someone asked Vararuci: "Tell me who is considered the best looking women in the city", Vararuci burst out laughing and said: "You fool, any women is good looking to the man who admires her". Yoga Nanda died of fever. Sakatāla (in Mudrā Rākshasa Sakatar) in conspiracy with Cānakya killed Yoga Nanda's son Hiraṇya Gupta Nanda and coronated Candra Gupta..

In Tāmralipta (Tamluk) there was a merchant called Dhanadatta. Dhanadatta had a son Guhasena. They for trading purpose went to a distant port. There Devasmitā (on whom gods smile), daughter of Dharma gupta, a merchant, fell in love with Guhasena. But Dharmagupta did not like that his daughter should go far away from him. So Devasmitā secretly left her father's place, and left the country with her beloved and his father. When they reached Tāmralipta, they were married. They loved each other. But when Guhasena's father died, his relatives asked him to go to Kotah (Kedah in Malay States. Rajendra Chola 1012-1057 despatched one of his several expeditions against Kedaran via Nakkavaram=Nicobar Isles. In the Kanyākumarī inscription, Vīra-Rājendra says: "With his forces he crossed the seas, and burnt Kotah. What is impossible for Rajendra Chola") for trading. But his wife Devasmitā first objected to the separation from her husband, but finally gave her consent. Guhasena made friendship with 4 young merchants of Kotah. Guhasena boasted to them the beauty and fidelity of his wife. Those young merchants planned to seduce his wife just out of curiousity and started for Tāmralipta. Reaching Tāmralipta, they approached a Buddhist nun Yoga Karandikā in a nearby *grāma* (*L* gremium=*AS* cramium=*O Bulg* gramada=*Gk* ageira=*Ger* gemeinde): "Reverend madam, if our object is accomplished by your help, we will give you much wealth". "No doubt, you youngmen, desire some pretty woman in this port; tell me all about it. I will procure for you the object of your desire. A merchant came here from the north. While he was dwelling here, my pupil Siddhikarī went there and obtained the position of a serving maid in his house. After she had obtained the confidence of that merchant, she stole his golds and went off secretly in the morning twilight. As she hurried off, a certain Dombā with his drum in his hand pursued her with the intention of robbing her. When they reached the foot of a Nyagrodha tree, cunning Siddhikarī told the Dombā: "I have had a quarrel of jealousy with my husband, and I have left his house to die. Therefore my good man, make a noose for me to hang myself with". Then Dombā thinking, "Let her hang herself; why should I be guilty of a woman's death?" So he fastened a noose for her to the tree. Then

Siddhikarī said to the Dombā: "How is the noose slipped round the neck! Show me, I entreat you". Then the Dombā placed the drum under his feet, and saying: "This is the way we do the trick", he fastened the noose round his own throat. Siddhikarī smashed the drum with a kick, and Dombā hung dead. At that time, the merchant came there in search of her and saw her from distance. Siddhikarī seeing him coming with his servants climbed up the tree. A servant followed her. And Siddhikarī whispered to him: "I have always loved you. Now as you have climbed up where I am, so all this wealth is at your disposal; handsome man, come and embrace me. So she embraced the merchant's servant, and as she was kissing his mouth, she bit of the fool's tongue. Overcome with pain, he fell off from the tree, spitting blood from his mouth. The merchant fled terrified. In the meantime Siddhikarī descended from the tree and safely came to my place. Such a person in my pupil, distinguished for her discernment. Now my sons, tell me the real state of affairs—"What woman do you desire? I will quickly procure her for you." When they heard that, the youths said: "Procure us an interview with the wife of merchant Guhasena, named Devasmitā. The nun gratified the servants of Guhasena's house with gifts of sweetmeats and other things. Then as she approached the private room of Devasmitā, a bitch that was fastened there with a chain would not let her go. But Devasmitā seeing her sent a maid and had her brought in. The nun said to her: "I have always had a desire to see you, but today I saw you in a dream; therefore I have come to see you with impatient eagerness. My mind is afflicted at beholding you separated from your husband, for beauty and youth are wasted when one is deprived of the company of one's beloved". Thus she tried to gain her confidence. On the second day, she took with her a piece of meat full of pepper powder and went to the house of Devasmitā and there she gave that piece of meat to the bitch at the door. The bitch gobbled it up. And owing to the pepper powder, tears flowed from the animal's eyes. The cunning nun entering into the room of Devasmitā who received her hospitably began to weep. When Devasmitā asked her why she was shedding tears, she said with affected reluctance: "My friend, look at this bitch, weeping outside, she recognizing me as companion in a former birth has begun weeping. Therefore, I could not resist shedding tears". Devasmitā saw the bitch outside actually shedding tears. Then the nun said: "My daughter, in a former birth, I and the bitch were co-wives of a Brahmin. And our husband frequently went out on necessary business. While he was away from home, I enjoyed myself with other men; so I did not cheat my natural instinctive urges and my senses of their lawful gratifications. For considerate gratification of sensual hunger is regarded as the highest duty. Therefore I have been born in this birth with the recollection of my former existence. But she in her former life through ignorance confined all attention to the observance of conventional morality. Therefore she has been degraded and reborn as a bitch". Intelligent Devasmitā thinking that this was a novel conception of duty felt that this nun was laying a treacherous snare for her, she said to the nun: "Reverend Mother, I have had no knowledge of it before. So procure for me a rendevous with a charming youth". The nun said: "Some young merchants have recently come to the town from a distant port. I shall bring them to you". The nun returned home delighted. Devasmitā thought: "It is very likely that these young merchants might have heard from my husband of my beauty and fidelity to him. And they have come here to rob me of my honor to taunt my husband on their return. It is also likely that my husband and these merchants have gambled and made a wager heavily on my morals". And so thinking she asked her maids to mix wine with Daturā, and have dog's foot iron made as soon as possible. When young merchants heard of the success of the nun, each one was eager to come first. But she chose only one at a time. And concealing him in the dress of her pupil Siddhikarī, she introduced him in the evening into the house of Devasmitā and then went out. Then that maid who was disguised as Devasmitā persuaded the young merchant in a pleasant way to drink some of that wine, drugged with Daturā. The liquor robbed him of his senses, and the maid stripped him of all his clothes and valuables and branded him on his forehead with the mark of a dog's foot and pushed him at night into a ditch. When he recovered his consciousness in the later part of the night, he went to his residence nude, covering his forehead with his hands and told his friends that he had been robbed in the way in order that he might not be the only person made ridiculous. And next morning he sat with a cloth wrapped round his branded forehead, giving as an excuse that he had a headache from heavy drinks and excessive sexual orgies. In the same way all the 4 young merchants got their lessons for trying to seduce other man's wife. Then another day the nun with Siddhikarī went to the house of Devasmitā who received them heartily and offered them the drugged wine as a sign of gratitude. When they were stupefied with the narcotic drink, their ears and noses were cut off and they were thrown into a ditch. And thinking that these young merchants might wreck revenge on her husband, she with her maids embarked on a ship as merchants and came to Kotah. Then Devasmitā saw the king with valuable presents and asked him to summon all his adolescent citizens on the ground: "Four slaves of mine have escaped and they are residing in your city". All the young men of the town were summoned at the king's command. And the king said to her: "Young men are here. If you recognize any slave of yours, you can take them away". She seized upon the four young merchants who had cotton ribbon bound round their heads as a decoration. Then the other people vehemently shouted out to her: "These are the sons of distinguished merchants. How can they be your slaves!" She proudly answered: "If you do not believe me, examine their foreheads which I marked with a dog's foot". When the ribbons from their foreheads were removed by king's order, actually to the astonishment of all, dog's foot was found branded on their forehead. The king asked Devasmitā to explain the mystery. She told plainly the whole story she knew. And the whole assembly burst out laughing. And the king said to Devasmitā: "They are your slaves by the best of titles". Then a large sum of money was paid to Devasmitā to redeem themselves from slavery, and a heavy fine to the king's treasury. Devasmitā thus united with her husband, and honored by all good men returned together to Tāmralipta, and they were never separated from each other again.

32 *Arab Tales.*—Mocailama, son of Kaiss (of the tribe of Houcifa of Yamama), pretended to have prophetic gifts. He used to boast: "If I put my venerable hands on a bald head, at once hair will sprout up on the head; if I dig well, there will be abundant water in it; and if the water is salty, at once it becomes excellent and sweet to drink; if I touch the eyes of a blind man, immediately his eyesight is restored". There was a woman Chedja et Temimia of Beni Temim tribe who also professed to be a prophetess. She heard of Mesailama. She said: "Phophecy will not suit both of us. Either he shall be the prophet and I shall follow him with my disciples. Or I shall remain the prophetess and he with his disciples shall follow me". This happened shortly after the death of our prophet. Chedja thus wrote a letter to Masailama: "Prophecy is inconvenient to both of us at the same time. We shall meet together and shall discuss the matter. And whoever will be acknowledged as the true prophet, we shall follow him".[66] Tomorrow morning, raise a tent of different colours, decorated with silk brocades (Bena ala ahihi = the marriage tent). Fill it with delicious perfumes of diverse kinds as the ambgriergris, musc. The perfume will relax her mind, awaken her erotic inclination and she will be languid with awakened desire. Thus having possessed her, you will be relieved of the embarrassment with her tribe and escorts." Mosailama cried out: "You have given me a good advice. It will have a salutary effect". And he did as he was advised by the Sheik. When the prophetess was seated alone with her, he began to converse with her. Soon she became intoxicated with the perfume. And he understood that she desired coitus.

He addressed her thus: "Let us first enjoy each other. We shall argue later. Undress yourself"..... Then she said: "When I shall depart from this place, ask for me in marriage from my tribal chiefs". When she left the tent, she met her own people; they asked as to the result of their conference. She answered: "Mosailama has demonstrated to me what had been revealed to him, I have found them to be true. Obey him therefore". Mosailama asked for her in marriage from her tribal chiefs who had accompanied her, and they granted the permission.

Mamoun (son of Abbasin Haroum el Rachid, who killing his brother El Amine near Bagdad became the ruler in 178H), the Khalif had a buffoon named Bahloul (*Pers* clown). One day Bahloul presented himself before Mamoun in order to give him mental relaxation. Mamoun asked Bahloul to seat and said: "Why hast thou come, o son of a whore?" Bahloul answered: "I have come to know how fares my lord". "But I ask you, how you are faring with your old and new wife". Bahloul said: "I am not happy, for poverty oppresses me". And he recited a poem. "In my ignorance I have married two wives, thinking I shall be the favourite lamb, making a gambol on the breasts of both the ewes. But I find myself an ewe between two she-jackals. Either during night or day, I find the heavy burden oppressing me. If I am amiable to one, the other becomes furious. Thus I can not escape either of the furies. If you want to live a tranquil happy serene life, remain a celebate. If you cannot do that, marry not more than a wife. For one real woman alone can gratify two battalions of men." It gave Mamoun a hearty laugh, and as a token of generostiy he presented Bahloul with a brocaded garment. Bahloul left the palace in happy spirit toward the dwelling of the Grand Vizir. Hamdouna from her room saw Bahloul and said to her Negress: "By Allah, Bhaloul is dressed in a brocaded garment. How can I secure it myself?" The Negress replied: "My lady, you cannot get it from Bahloul. He is a clever guy". But Hamdouna sent her Negress to Bahloul, asking him to come to her. When Bahloul presented himself before her, Hamdouna saluted him and said: "O Bahloul, you have come here for my songs. He replied: "Certainly, Lady". Hamdouna had marvelous talents for singing. She began to sing love songs which would have captivated any one. And he was served with refreshments and drinks. After he ate and drunk, she addressed him thus: "I do not know why, but I think you will gladly present me with the beautiful robe you are putting on". Bahloul replied: "My Lady, I have made an oath that I shall not part with it except to one with whom I have intimacy". Hamdouna was the daugther of Mamoun and was married to the Grand Vizir. She was a dazzling beauty, endowed with harmony of form and stature. Hamdouna thought, if Bahloul after having enjoyed me divulges it to anybody, nobody will believe him". Hamdouna asked Bahloul to take away his robe and follow her into a chamber... The Bahloul dressed, rose and departed, leaving his brocaded robe. Somebody knocked at the door. The Negress asked who it was. Bahloul's voice answered: "It is I". The Negress asked what he wanted. Bahloul answered: "Fetch me a little water". She brought a jar of water. Bahloul drank from it and allowed it fall from his hands, and it broke into pieces. At this time the Vizir, the husband of Hamdouna came and asked: "Why do I see you here, Bahloul?" Bahloul replied: "O my lord, when I was passing through the street; I became very thirsty. One Negress brought me a jar of water. It fell from my hands and broke into pieces. Lady Hamdouna as a compensation took away my robe which had been given me by the Sultan.

CHAPTER VII

SEX LIFE IN ANCIENT INDIA

"IN the union with the beloved mate, one becomes whole and complete".—*Sata Patha Br* x, 5.2.8. In the development of their conjugal life, a married couple becomes conditioned to experience sexual reflexes in response to certain stimuli from each other. With the rousing of sexual reflexes, there is an increased blood supply to the genitals, a feeling of warmth and excitement. Sexual tension is manifest through progressive swelling, congestion and tumescence of the internal and external genital organs due to generalized vaso-dilation. The penis swells to nearly double of its volume, stands erect horizontally and bends towards the abdomen. The vulva and the clitoris are not indeed alone in participation in this process of congestion and tumescence. The vagina, even the uterus, the tubes and the ovaries are engulfed by this wave of vascular reaction. With the protrusion of the vulva and the clitoridean apparatus, the clitoris becomes tumescent and hypersensitive while the congestion and the hypertrophy of the genital organs as a whole take place, accompanied by the moistening of the vulva (*Skt* ulva) and the vaginal mucous membrane by the odoriferous (Tyson's) and vulvo-vaginal (Bartholin's) glandular and cervical secretions. The muscles of the perineal and genital region contract reflexly, augmenting thereby the nature and quality of amorous excitation. There are sporadic contractions of the vaginal orifice, accompanied by such manifestations as the quickening of the pulse, the awareness of the cardiac and arterial throbbing, increased respiratory rate and heightening of the color of the face, due to vaso-dilation. The eyes are more animated and brighter; there is curvature of the clitoris, directed downwards, in the direction of the vagina;

the swelling of its size and length brings the gland to the vaginal orifice; the vestibular bulbs (*syandana*) when enlarged during erection narrow the vulval orifice with their swollen cushion and secrete the lubricating secretion of voluptuous intoxication. These signs become intensified when there is the maximum amount of estrogen in the blood, which happens during the ovulation period or a few days before the menses. The Hindus regarded *Mithuna* (*Pāli* methuna=*Z* mithwana=*L* mutunus, mutum=*Gk* mitoi, mixis), as an act of worship (*Bṛ Āranyaka Up* 5.4), for thereby the mortal becomes immortal like Prajāpati, the creator, by engendering progeny (*Rv* 5.4.10).

Uttānaśāyinī:—The man lies (sete, sayate=*Z* saete=*Gk* ketai) prone (*pravana*=*L pronus*) on his wife who is supine with outstretched thighs and flexed knees in dorsosacral posture. By this the anterior wall of the vagina, the most sensitive and erectile, is excited by the rhythmic movements of the glans penis. If the wife after penetration of the penis stretches her thighs, brings them together, voluptuous sensations are intensified for herself as well as her consort. The vestibule whose gradual hypertrophy has increased the sensibility and the turgescent surface of the area in contact with *pesas* (*Gk* peas=*Lith* pisa) whose erection, hardness and volume being augmented by the compression due to the forced abduction of the woman's thighs, stimulates further the clitoris. If the woman abducts her thighs (ūru=*Z* vorus=*Gk* euruz=*L* varus=*Ger* wâde) to the maximum, raises them and brings them close to her abdomen and breasts, at the same time bending her knees (jānu=*Gk* gony=*L* genu=*Goth* kniu) completely so that her calves come in contact with the posterior surface of her thighs (Indrāṇika), fashionable among the South Slavs, the pelvis is thereby slightly raised and the vulva is easy of access, and the penis penetrates more deeply.—If a pillow is placed under her hips, it will increase her pelvic inclination, thus enhancing her sexual pleasure, at the same time facilitating conception if coitus takes place at her ovulation period.

Viparita Rata=Reverse Posture.—The male lies supine with his legs fully extended or slightly bent. The female, particularly one that is petite, light (*laghu=Gk* elakus=*Russ* legkis=*Ger* leicht) and svelte, assumes her prone position by first kneeling alongside the male. Then she spreads her legs apart and places one knee over to the other side of his body so that she is now astride his pelvis. She now faces the male and apparently in semi-sitting posture, though she is supporting her weight principally by her thighs, knees and legs. She rubs her clitoris with the erect glans penis which she glides over her urethra and under labia minora until it is pushed and encased within the walls of her vagina. She may be lying flat against him with her thighs slightly separated and resting on the flexed knees or thighs close together, or she may be crouched, leaning more or less forward with the knees in complete flexion and well apart from each other. Penetration is deep and vaginal sensitivity as well as that of uterine cervix are exploited to the utmost. And the man by digital stimulation of the clitoris may enhance orgasm of great intensity; on her part she can increase the amount of friction upon her clitoris. Clitoral stimulation is possible when the woman lying or kneeling over his body leans forward and moving back and forth causes the clitoris to rub heavily agsinst the underside of the penis. The penis is forced flat against his abdomen and this offers some resistance to vaginal cushions. If she proceeds to sit down on the organ, it may be crushed and the shock may transform the erect penis into a flaby organ. Nor must she squeeze the penis by contracting her vaginal splincters and thus hold the penis as a captive.

Dhenuka=Coitus a la vache.—In knee chest (genupectoral) position by permitting posterior entrance of the penis, the ventral wall of the vagina is stimulated and the vibrations are imparted to the rectal wall which in turn transmits some pleasurable stimulus to the sensitive anal region. As woman's eroticism is more widely distributed than that of males, there is greater awakening and gratification where there is wide despertion of stimulus. And as the clitoris is located in the lower angle of the vaginal apparatus, posterior penetration provokes its complete titilation, while in the anterior position it is partially missed. Face to face position, however has an inciting influence and promotes the precipital ejaculation of the semen. Tightening up the pereneal region precipitates the ejaculation of the semen, as it induces the contraction of the accessory muscles of ejaculation which in turn send stimuli to the nontraction of the prostate and seminal vesicle. Coitus a la vache is well-suited for obese couples.

Tiryaka.—Lateral semiprone position, lying on their sides, facing the same way with the husband approaching from the rear as the wife draws up her knees to avoid pressure in pregnancy or the genital organs are incongruous, that is the penis too long and the vagina too short in order not to hurt the cervix by repeated thrusts. It prevents quick ejaculation from the male. It stimulates urethral eroticism of the female. The Austric wife sleeps with her back to her husband's front.

Utthita Bandha.—Standing mithuna with a woman, lips united by ardent kissing, and her legs uplifted at Chitragupta Temple bas-relief, Khajuraho. Standing mithuna with a woman, watched and blessed by a priest standing nearby, in Devi Jagadambā Temple. Standing mithuna at Visvanātha temple. One standing man having anal intercourse with a female and another with the male. The man standing on his head with folded legs; a female sitting in the fold on his virile organ, holding by her arms the necks of two standing nude females on her both sides, man's extended fingers of both arms are titilating the vulva with exuberant growth of pubic hair (*Tib* bāl=*Fr* poil) of the standing nudes, and his folded legs holding her thighs at Visvanātha Temple, Khajuraha. Kāma Cakrayānis built the temple. A woman standing on her feet bends with her hands on the ground, and a man copulates her from behind, holding her waist and breast with his hands.—*Lakṣmaṇa Temple, Khajuraha.* A standing woman is copulated by a man in the front face to face and at the same time she has anal intercourse with another man from behind.—*Visvanāth Temple, Khajuraha.* A standing woman bends with her hands on her knees, and a man standing behind her copulates her, holding her breasts. A woman crouching is licking the erect penis of a man, holding his waist by her hands. A woman lying on a man, his erect penis inserted into her cunnus, and the man's hands on her back like the *spintriis* of Tiberius.—*Lakṣmaṇa Temple, Khajuraha.* A woman uplifted with bent knees, held by a man's hands, locked in ardent embrace, kissings and copulation—*Devi Jagadambā Temple, Khajuraha.* A woman ardently kissing a standing man, holding his neck by one arm, and by another hand inserting his erect penis into her cunnus, and he pressing her right breast with his one hand.—*Viśvanātha Temple.* A standing woman is ardently kissing a standing man, holding his shoulder with her arms, and he is inserting his penis into her cunnus.—*Citragupta Temple, Khajuraha.* A woman's thighs are spread over the shoulder of a standing man who with bent head licks her cunnus, and she with her bent hanging head holds his erect penis with her one hand and licks it with her mouth.—*Devī Jagadambā Temple, Khājuraha.*[34] A standing man's one leg is bent against wall and a standing woman's one leg is uplifted and held by his bent thighs and they are interlocked in ardent copulation. A woman's one leg uplifted and held by his right hand of a standing man, face to face interlocked in voluptuous embrace.—*Konarak Temple*. *Mata* (thought) = *Gk* matos = *L* mentus.

Elderly Dīrgha-Tamas asked Sudeshṇā to lick with her tongue his penis besmeared with mixed honied salted curds in order to provoke its erection (penilinction) so that she could have a child by him.—*Matsya P.* Ch. 84. Fertility was low in ancient India, particularly in aristocratic families. Is it due to polygamy? But among the polygamous Assyrians and Islamis, fertility was quite high. Is it due to non-circumcision, the long foreskin interfering of the semen flowing in powerful jets into cervical mouth? Decorticated whole wheat (godhuma containing vitamins E and B-complex), cooked in milk, was given with banana (containing vitamins A, B-complex, C and a little of E) to be eaten by the barren wife, milk and curds containing Riboflavin, butter containing vitamin A. Panca-Gavya, five products of a pregnant cow, particularly its urine, contain not only estrogens but also gonadotropins. In Kuśa Jātaka 531, barren queens were allowed promiscuous intercourse to secure progeny.

Sexual mores.—Wearing variegated garments, experts in personal cleanliness and hygiene, of good morals, disliking nail (nakha = *Lith* nagas = *Gk* onux = *L* unguis = *Ger* nagel) pressure and mumbling but fond of amorous sports are the women of Middle Land (the territory between the Gaṅgā and the Yamunā) origin (1). Fond of erotic caresses, charmed in a durable coitus, but orgasm is brought only through the (vulvar) manipulation of the hand of the women of Mālava origin (2). Flagellation (abhighāta) is excitant, but not nail pressures and nibblings; though longing for embraces but the heart is won by many kisses of the Abhira (Avar) women (3)—*Anaṅgaraṅga*. The love treasure (upastha = pubes) of the Gurjāra is full of quivers; she speaks sweetly; she has fine artistic taste; and she has luxuriant locks of hair; she is modest (*muditā* = *L* modus, modesta) and gives delightful thrills in her copulatory movements (3). The Gurjārī is slim and graceful; the curls of her hair are playful. She has firm globular breasts (stana =*Z* ftana=*Pers* fistan=*Arm* stin) and fine eyes; she has a pleasant (cāru=*L* carus=*OIR* carium=*Fr* cher) speech; she relaxes (*las*=*L* lassus, languere=*Gk* lagaras=*Lith* languas=*Fr* lascif) by varied internal and external caresses (4). The women of the Punjab cannot be won over without Auparişṭaka=cunnilinction (5). The Lāta woman by gentle flagellation and by the pressure of nails and nibblings gets her *Yoni* abundantly moistened (*ārdra*=*Gk* ardo); she is fond of embraces; she is finely shaped, and in copulatory enjoyment is thrilled in her ardent impetuosity (6). The Andhrā maiden is well-formed. But in her sexual acts she exceeds very much decency and adopts evil manners; she performs coitus like a mare (vāḍava;[35] the woman supports herself on her hands and legs and the man copulates her from behind, folding his hands round her waist; the mare during her heat opens and closes her vulval lips spasmodically and draws in even a soft phallus by her vulval muscular contractions and pulls). Āndhrī premani-bandhanaikanipunā=Andhra woman is an expert in sex-unions is varied postures. 16 *Ratirahasya.*—The Utkali is enamoured of the coitus in reverse posture (viparitaratābhilāsinī); she is shameless and is found of nail pressures and bittings, but very sentimental and amorous (9). Kosalā woman has excessive pruritus (kanduti, in her gentalia, possibly due to the invasion of protozal Oxyuris, trichomonal infection or of Monilia albicans, provoking leuchorrhea). Only durable penile pushes can bring her orgasm; she is however clever in sexual postures and movements (6). Women of Pātaliputra and Mahārāstra are charming in their very coarse saucy utterances; they are shameless, restless, though artistic and sentimental. (7)—*Anangaranga.* The Mahārāstra, Strīrājya and Kosalā women are fond of kissings, embraces and artificial phallus (3). Flagellation, artificial phallus, and coitus thrill the Karnāta beauty (4). Kissings, (cumbana=*Tam* cumpu), stroking the hair and the clitoris, pressing the tongue (jihva=*Z* hizva=*Khot* bisa=*OSlav* jexykhe) and the breasts and flagellation delight the Drāviḍa women (5). Gauḍa and Vaṅga women whose limbs are gracefully formed are very skilful in various modes of sexual unions, kissing and embraces (6). Smaradipikā. Tairabhukta beauty is skilled in dressing her hair, breasts, entwining both (*ubhau*=*Gk* ampho=*L* ombo=*Lith* abu=*Ger* baide) of her hands round her lover's neck (*gala*=*L gula*=*Fr* gueulle) and embraces; she is an expert in all kinds of sexual postures; she is delightful in her pleasant conversation (2). Mālavī woman is pleased with spankings; erotic caresses delight her; she is gratified by a durable coitus; but she makes herself artificially barren (dhurta-vandhyā). The Chola maiden gives and gets her pleasure. Sometimes her amorous ardor is manifest; but it changes quickly and remains treacherous (4). The Sindhu woman has restless eyes (*akshi*=*Z* ashi=*OGk* okos=*Ger* auge =*Russ* oko=*L* oculus=*OSlav* oko=*Lith* akis=*Toch* ak); she is of splendid beauty; she has passionate urge; it is very hard to satisfy her in coitus; as soon as one ceases copulatory movements, she becomes enraged; she is of bad manners and is polyandrous (6). The youthful beauties of Cina (Cina), Sauvira, Drāviḍa and Mālaya origin have soft voice like that of cuckoo, have graceful limbs; they are brave and independent spirited; they are impulsive; they know no shame nor delicacy. But a short coitus is gratifying to them (8). Madra and Tailaṅga women are skilled in all modes of sexual unions; to successful and wealthy persons, they easily yield; though modest, jewels are seductive to them; they are experts in entwining (their lovers) with their hands; their passionate urges are delightful; they are fragrant like flowers (9). Naturally filthyminded Paundra and Kamboja women enjoy the amorous struggles to enhance their libido; but not finger pressures, nibling, stroking the hair or embraces. Kāmarupa women enjoy spankings (10). Lata-Karnata expert women holding closely their lover's neck (griva=*Z* griva=*Lett* griva= =*OSlav* griva) write all over their body love symbols with their finger nails, holding their hair, kiss their lips incessently, give them spanks, yet unless their passions are roused thereby, they do not get quick orgasm (11). Mleccha and Hill tribes (Parvata) women are infected with diseases (dusta); foul odor comes from their body; and they copulate like animals without kissings and embraces. Kāsmira and Abhira (Avar) women by their strong odor kill all erotic longings and artistic pleasures (12).—*Pañcasāyaka.*[36]

The population control was devised to check the increase of population to adjust it to the economic development of the country. Unwanted babies as the deliveries of unmarried maidens (*putram agruvo*) were abondoned on anthills to be eaten up by ants (*Rv* 4.19.9). Abortion was practised by giving message and fomentation of the abdomen (338 Tusha Jātaka). As a contraceptive measure coitus interruptus was known. *Rv* x. 61. 6-7 mentions that when semen is discharged outside the vagina, conception does not take place. Bṛihad Āraṇyaka Upanishad 6.4.10 describes that when pregnancy is not desired, the emission of semen may be delayed, if not prevented by inbreathing and contraction of perineal muscles. Before the impending orgasm of the male, if he does not withdraw the penis in time, with her fingers she presses at the base of the urethra in front of the testicle at the root of the penis, and the semen escapes with the urine or trickles out. "The rutting (*ritu*= *Fr* rut=*Lith* ruja=*Gk* erot, sexual excitement) period of women is usually 16 days, commencing with the onset of menstruation".—*Manu* 3.46. The *Ritu* is also the fertile period, except the 3-4 menstruating days. The rest of the days of the menstruating cycle was regarded as the safe period. The menstruating days were regarded as unclean; it was only used by the Tāntrikas. Only the last ten days before the commencement of the menstruation were regarded as *safe*. In Goraksha Saṃhitā 61-71, it is mentioned that *Hata Yogis* can learn through practice to prevent the seminal outflow even in the wanton embrace of an ardent woman; but in order to relieve tension, if the semen is discharged, by *Vajroli Mudrā*, through penile urethra, the semen and the vaginal fluid may be aspirated and absorbed in the lymphetics, thus preventing conception.—*Hatayoga Pradipika* 3.82. Widows were forbidden re-marriage, thus restricting their reproduction. Continence was enjoined on the widows, monks and nuns. Canabis Indica (Soma=Bhaṅga *Av* 11.6.15=*Z* Banha=*Hindi* Bhāṅg=*Pahl* Bhanga; caras, siddhi) was used extensively not only as an aphrodisiac, but also as an abortificient by spasmodic contraction of the uterus by Śakas and Parthians (*Vendidad* 25.2.147). Yuechi-Kushān Tukhara (Tocharian=*Chin* Tu-ho-lo=*Tib* Thogar) used scented kumys whey for washing the penis and the vulvar orifice before and after sexual union, not only as a prophylactic but as well as a contraceptive, as it contained not only lactic acid but also alcohol. *Bṛihad Yoga Taraṅgini* of 8th century A.D. prescribes that a woman after menstruation should fumigate her *yoni* (=*Gk* gyne=*L* cunnus=*Fr* con) with *nimba* fire smoke for its purification; after child birth should smear the *yoni* with borax mixed with honey and ghee for its contraction; as a contraceptive (1) to smear the vagina with a bland oil, ghee or honey emulsion with rock salt; (2) to insert a paste ball into the vagina of Palāsa or Ajowan seeds; (3) to insert into the vagina a cotton wool paste ball, besmeared with oil, ghee or honey emulsion with rock salt. In Thailand, Indonesia, Burma, S. India, salted rice jelly (made from rice flour boiled in salted water) is inserted into the vagina before sexual union. In S. India and Polynesia the unripe fruit juice of Padanus utilia (*Skt* ketaka) and pineapples are utilized for the purpose. Phenyl acetate is used in England in vaginal pessary or jelly as a spermicide. Wife as a fellatrice, sucking semen by her mouth, *Bhāg P*. 5.26.6.[37]

30. Sexual congress is gratifying to a virgin girl when she is sexually roused. Erotic arousal is effected by deep kissing, involving considerable tongue contacts, extended exploration of the interior of the partner's mouth (observed among the mammals), manual and oral (more effective) manipulation of the female breasts—mammalinction (*L* mamma—breasts, lingere, to lick), cunni (*Gk* gyne=*L* cunnus= *Fr* con= yoni)-linction, clitoridilinction, peni (*L* penis=puṃs)-linction, ani (*L* anus)-liction (*Vāyu* P 99.79). They provoke erotic stimulation, involving adrenal secretion, typically automatic reactions, increased pulsation, increased blood pressure, an increase in peripheral circulation and perceptive capacity such as sight, hearing, touch, taste and smell; an increase in nervous tension; muscular thrusts of the pelvis and hips. With the rousing of the sexual reflexes, there is an increased blood supply in the regions; a feeling of warmth and turgescence. The vagina becomes distensible, and being surrounded by contractible circular muscles, it is resilient. Therefore the relative sizes of the penis and the vagina are not obstacles to copulation. When sexully roused, bodies of both sexes become relaxed, and different. Sexual contacts and movements can be executed with considrable ease and flexibility. Varying the positions of the penis as vigorous penetration or gentle contacts within the vagina afford different degrees of stimulation. In the woman rhythmic movements consist not only of vaginal muscles, but also circular and tilting movements of the pelvis and abdominal walls. Large penis can be accomodated during sexual excitement by distensible vagina; but long penis hurts by rubbing against os uteris. Males prefer coitus in light as their sexual erethism is roused and increased by seeing, manipulating, sucking and petting the nude body, particularly the bosoms and the vulva, but virgins and young wives prefer darkness through shyness and modesty. If the wife lies supine and her thighs dangle down from the edge of the bed, her head low, pubes high (*utphullaka*) or one thigh abducted with bent leg (*venuvidārita*), monsveneris becomes prominent, vulvar lips gape, labia minora are visible, the introitus is not even hidden, thus gratifying covetous curiosities of the male and thereby increasing his excitement. The husband standing on feet leans over her and with his hands under and posterior to her nates draws her forward so that her pubes is in contact coaptation with his pubes to insert his penis into moist vagina. Intromission of the penis is easy and intoxicatingly thrilling as the axis of the vagina is upward, the vulva is stretched somewhat in the anterior posterior direction, thereby bringing the lips somewhat closer together which seize the penis with delightfully soft warm pulsating grip, and the turgid upper surface of the erect penis rubs against the sensitive tumescant clitoris. Most of the physical stimulation which the female receives from the actual coitus comes from the contact of the external areas of the vulva, of the area immediately

inside outer edges of the labia, of the clitoris with the pubic area of the male during the sexual union. Nerves are only in the area of the anterior wall, proximate to the base of the clitoris. Most of the interior of the vagina is without nerves. The female may be conscious of the intrusion of the object into the vagina, particularly if the vaginal muscles are tightened. The nerve endings in the skin are of several kinds. Some are sensitive to heat,, others to cold, touch and pressure. Certain areas of the skin have a more abundant supply of nerves, so more sensitive to stimuli as finger (āṅgula=*L* ungula, claw of birds=*Fr* ongles de la main, finger nails) tips, lips, teats (cucuka=*Fr* teton =*Gk* titthe=*Ger* Zitze), nape, armpits, genital regions, glanspenis and clitoris. Smegmaclitoridis is a poweful sex stimulus to the male as the smegma preputii is to the female. But if it is made to accumulate for a long time without periodical cleansings, due to fungus and bacterial infection and fermentation, it is likely to produce offensive odors. Higher animals during their ovulatory rutting period have an odoriferous secretion from their vagina which attracts their males who rub their nose with it and sniffing it, they become violently sexually excited. Women during their menses and ovulation secrete from their genital region and armpits a strong male-sex-stimulating liquid with which pubic and axillary hairs are sprinkled and which they retain and exale, though dried up. If during the sexual act the wife exercises pressure on the perineum, ejacultion is prevented. By pressing on the perineal urethra just before ejaculation, the egress of the semen is prevented and instead the stream of the semen is diverted into the urinary bladder. Suction of the nipple produces a strong reflex uterine contraction. Breasts like the genitalia contain a certain amount of erectile tissue, the engorgement of which is the prelude to orgastic detumescense. Kapālikā=*L* cephalicus=*Gk* kephalikos.

Yugmapada Vaidhṛita:—The man sitting on a low stool with legs spread out, and the woman kneeling between them, her arms on man's shoulders and his arms holding her by her nape, kissing each other, breasts upon breasts.—Rock-Cut Temple of Elora of eighth century. Suitable for newly married couple.

36. "These Bahlikas (of Madra) are shameless. They indulge at pleasures (*priti*=*Ger* freude) in the presence of everybody and with anybody, even with close relatives—father, mother, son, daughter, mother-in-law, mother's brothers —kindreds, friends (*bandhu*=*Ger* freund=*Lith* pretulus=*Russ* pruatate), guests (*Ger* gast=*L* hostis; gosthipati=*Goth* gast-paps=*OSL* gaspoda=*O Bulg* gospads, lord of the guests, i.e. the chieftain who feeds and protects the guests—*Vispati*=*Lith* wiespats; *Lett* wisis, guests); and even the slaves,"—*MBh* 8.27. 75-76. "In Uttara-Kuru women are free to cohabit according to their choice, where men and women have no jealousy."—*MBh* 13.102. 64-65." Sudarśana asked his *bhāryā* (bhar, to bear=*Z* baraite=*Gk* phero, pheroin, to bear babies=*L* fero, fertile=*Ger* gebaren, to give birth) Oghāvatī to gratify the cravings of a true (*dhurva*=*Lith* drutu=*OIr* deb, certain=*O Prus* drawis, with faith) guest. When a guest solicited sexual union with her, she yielded in obedience to her husband's wishes; when her husband came to know about it, he was rather pleased in the way Oghāvatī had entertained the guest."—*MBh* 3.252.24. In Irene (Airem, Aryaman), "the men have public commerce even with their mothers and sisters".—*Strabo* 4.4. "Among the Messa Getes, when one of them desires (*kāma*=*L* amare) a woman, he suspends a quiver in front of his chariot and tranquily unites with her." *Herod* 4.104. Polynesians and Eskimos offer sexual hospitality to their visitors or guests through their wives as a simple act of courtesy.

The Reverse Coitus is the general practice in Zamzibar; in this the woman riding over her husband, inserting the penis into the vagina and adjusting it, moves her pelvis like a grain sieve.

36. Gond, Oraon, Santal, Tropiander girls sleep in dormitories, where they indulge in amorous dalliance with parties of their choice. Chukchee believes that coition will harm a girl until her breasts are developed or she begins to menstruate. But prepubescent girls often indulge in coitus despite this belief. African Chagga, Thonga, Kikui, Wolof are strictly forbidden copulation before circumcision. But after circumcision they are permitted sexual freedom with females of their age group. Chagga youths copulate with barren women and subsequently they sully forth to seek other sex partners within their own age group until their marriage. But they are instructed to practise either interfemoral intercourse or coitus interruptus, unless the girl places an absorbent pad within the vagina to avoid conception. Normally loving couples seek seclusion for sexual unions. But not all. During the summer, some Formosan tribes copulate out of doors and in public, provided there are no children around. Yap couples, though generally alone when they are interlocked in sexual unions, copulate almost anywhere out of doors and do not appear to mind the presence of other peoples. The Gond couples copulate in the bush near the dwelling. The Gonds say that the Goddess of Wealth, residing in the dwelling, could be annoyed by the proximity of a copulating pair. Alorese, Kwakeutt, Hopi and Crow prefer the dark of night for sexual union, because to be seen copulating is for them a source of great shame. The Cano, Semang, Langa copulate only at night. The Masai confines sexual coupling to the evening for fear that if it takes place during the day, all of man's blood will flow into the woman's womb, leaving only water in his veins. The Chenchu considers it dangerous to perform coitus in the dark, believing that any child conceived under such condition is apt to be born blind. Trobrianders prefer the roar of the breakers on the fringing reef, foam of the sea on the loose golden sand under the whispering cocoanut fronds to mingle with the rhythms of their amorous sports. Kanak rubs his nose against the woman's breasts, gets stimulated by inhaling deeply its aromatic smell, while making love. Among many peoples copulating couple may lock in a close embrace and as climax approaches, woman's breasts are then tightly pressed against the man's breasts. Among the Matuco, it is always the girl who makes the first sexual advance. Among the Trobrianders, Lesu and Kurtachi, either the boy or the girl is permitted by custom to take the first steps in soliciting sexual union. Lesu woman may try to seduce a man by displaying her sexual organs. Young men of Tikopis occasionally take the initiative by flipping up a girl's skirt so that her genitals are exposed. Among the Dahomeans, women who belong to the *serpent cult* wear a short skirt, and if one of them is desirous and meets a man alone, she drops the skirt, thus exposing her genitals to him. Kurtachi woman desiring sex connection with a man who does not make advances to her, will when opportunity arrives, lie down in his presence with her legs apart. If a woman expose her genitals even unwillingly as in sleep, the situation is to be taken advantage of by any man whose passion may be thereby aroused. Gond women scorch and singe their axillary (kakṣa=*OIr* oxal=*Fr* aissele=*Ger* aisel) and pubic hairs with the warm ashes of the dry leaves and twigs of Emblica officialis and pull them out.

Manual stimulation of the feminine genitalia is a common prelude to coitus among educated Eur-Americans, among Aranda, Aymaru, Crow, Dahomeans, Hopi, Koryak, Trobrianders. Manual stimulations of the male genitals by the women occurs among 10%of educated American women, Crow, Hopi, Tikopia, Tribrianders. In Tikopia, a man is forbidden to touch his own or the woman's genital and she often guides his penis into her vagina with her fingers. A similar more is practised by the Wogeo whose woman forbids men to touch feminine genitalia; women generally fondle the penis and assist their partners to achieve intromission. Oral stimulation of the penis by the female occurs among the Aranda, Ponapean, Trukese and Wogeo. Oral stimulation of the female genitalia as an erotic stimulant is practised among the Alorese, Aranda, Kusians, Marquesans, Ponapeans, Trukese, 45% of the educated Americans. In Ponape, the clitoris is titilated by the penis which the man holds in his hand before attempting full insertion; labia is stimulated by tongue and teeth. After a period of such foreplay the woman urinates, a sign of sexual excitement, and then is the penis inserted into the vagina. Sometimes a fried fish is placed in woman's vulva and it is then gradually licked out. A baboon meeting an estrous female whose sex is swollen often sucks up with his lips and tongue the labia and the clitoris, thus rousing sexual response. Crow man ordinarily fingers woman's clitoris prior to intercourse, and before copulating with a virgin, the man customarily stretches the hymen with his finger. Dahomean men play with woman's labia before coitus, and young girls attempt to thicken and lenthen the labia in order to increase their sexual attractiveness. In the Marina, it is believed that the women's pleasure in intercourse is greater if the clitoris is large, hence a girl's lover attempts to increase the size of the clitoris by rubbing and pulling it. *Pasas*=*Gk* peas=*Lith* pisa, pisti=*L* penis.

As far as physical capacity for coitus is concerned, it appears that during the youthful period, most young men and women would be capable of coitions (*L* coitio, coitus, coitione=codana) daily though individual difference exist. Lepcha men when first married would copulate 5 to 6 even 7 to 9 times in the course of the night though they may be tired next day. This potency diminishes round the age of thirty. But copulation once nightly is still the general rule of the married couples. Any organ overworked supplies its supplementary energy at the cost of other organs by robbing them of their latent power reserves. Aranda of Australia copulates as often as 3 or 5 times nightly, sleeping between sex acts. The Ifugao and Arab women admire men who practice coitions several times a night. Among the Thonga of Africa, it is not unusual for a man to copulate with 3 or 4 of his wives in a single night. For Chagga men, intercourse 10 times a single night is not unusual. Arab woman would be dissatisfied if she does not get sexual embrace every night. Crow Indians have sexual unions every night. American husbands between 15 to 20 years of age perform about 4 coital acts per week; at 30 thrice a week; at 40, twice a week; of course there are husbands between the ages of 16 and 30 whose average maximum frequence exceeds 25 copulations a week. Keraki however only copulates once a week. Lesu once or thrice a week. Two or three times a week is typical of Chircahea and Trukese. Hopi copulates 3 or 4 times a week. Crow Indian thinks it weakening to have sexual embrace nightly, but finds it difficult to do so less frequently. Sirino of E Bolivia engages in coitus once daily. Among the Marquesans, the habitual copulatory pattern involves restraint and every man learns easily in life to control his ejaculatory reflexes in such a manner as to retain the erection and continuation of coitus as long as the sexual partner demands. Three fourths of husbands in USA have their orgasm and ejaculation within 2 minutes or less after intromission of the erect penis, followed fairly promptly by loss of erection and at least temporary impotence; less than 5m in 40%; 5-10m in 34%; 15-20m in 17%; 30m in 9%.

Trobriand Islanders spread a mat on the earth while they are sure of not being observed, and skirt and pubic leaf are removed. They may at first sit or lie side by side, caressing each other, their arms and legs interlaced. They will rub their noses, cheek is rubbed against cheek, mouth against mouth, tongue is rubbed against tongue. They suck each other's lips, and lips are bitten till blood come out. The saliva is allowed from mouth to mouth. The teeth are used freely to bite the cheek, to snap the nose and the chin. Biting and scratching are carried even into the passionate phase of the coitus (ikaitasi). It is a great jest in the Trobrianders to look at the back of a man or woman for the proud marks of success in amorous life. Only women actively lacerate their lovers, and bites and scratches are observed on their neck, back and shoulder. *Momona* denotes in Trobriand both the male and female discharge for lubrication and orgasm. Toda greet any person who is so marked with the quip: "You have been bitten by a tiger". Lying side by side, face to face is the preferred position among the Goajirs and Msaai. Intercourse in the sitting posture, the woman squatting on the man is the dominant mode of the Palau and Yaps. An alternate form occurs among Pukapukans in which the man folds his legs under him and the woman faces him with her legs on his thighs; it also prevails among the Crow, Hopi, Ponapians, Wogeo. Among the Lepcha, Hopi, Crow, coitus occasionally occurs with the man standing behind the woman while she bends on her hands and knees. This method is apparently confined to brief and sudden encounter in the woods. The Colorado, Chiricahua and Lepcha woman plays usually a passive role during coitus and takes hardly any initiative in sexual activities, only submissively responding to man's urges. Alorese, Azandi, Crow, Goajiro, Lepcha, Masai, Trobrianders practise coitus in the side to side position when being discreet or the woman is pregnant. In Carolines, among the Ifugao sexual foreplay may include kissing of the lips, breasts and nipples; cunnilinction and fellatio. Intercourse is effected in three ways—with the woman lying on her back and the man squatting between her legs; the man lying on his back and the woman on top of him or the man entering from the rear. Balinese, Chenchu or Lepcha man squats or kneels before the supine woman, lifts her thighs on to his hips so that her legs saddle his thighs, accomodates the parts with his hands, pulls her towards his body in his hands or around her neck or shoulders; the woman grips him tightly around his planks or buttocks; and thus they embrace one another in a semi-erect, squatting or or kneeling posture, predominantly an eceanic pattern, resulting in vigorous clitoral stimulation. *Variṣṭha*=*Goth* balista=best.

The first seminal ejaculation takes place among USA boys at the age of 13.8 years; 75% by masturbation; 22% by nocturnal emission; 3% by sexual intercourse or homosexual performance. About 30% of USA adults have at one time or another been brought to orgasm as a result of oral stimulation of the penis by a member of his own sex or the other. Homosexual behavior of American males usually begins with the exhibition of the genitals to another member of the same sex. This is usually followed by manual manipulation of the partner's genitals and somewhat later anal and oral contacts may be indulged in. Only 16% of the entire group use anal and interfemoral copulation. Among the woman homosexuals, hugging and kissing always occur. Stimulation of the clitoris by the tongue or lips is practised in 91% of the cases. Mutual manual masturbation is practised in 41% and caressing of the breasts in 21% of the cases. Self masturbation and close rubbing of the body are common in 15% of the cases. Only 3% of women employ their clitoris or some other penis substitute within the vaginal membranes. Male homosexual behavior, most frequently involving anal intercourse, occurs amongst Chamorro, Chukchee, Cheek, Keraki, Koniag, Arabs, Iranians, Turks. Aranda women characteristically titilate each other's clitoris (*Chelia*) with the fingers and one of them will be on the top of the other like a man and then rub the two *chelias* together. Chukchee women of Siberia use an artificial penis made from the calf-muscle of rendeer. In Africa MBrundu, Nana women use an artificial penis in mutual masturbation. Women of Aranda use a wooden phallus, covered with skin, or occasionally a banana, cucumber, manioc, a sweet potato which is tied round the waist of one of the women who simulate copulation with her partner. Homosexuality is known to be prevalent among the women of Aranda, Ayamana, Azande, Chiricahua, Chukchee, Crow, Dahomean, Haitians, Nama, Ojihwa, Samoams, Yana. Mbotumbo, the ape god of the Baule on the Ivory coast.

From 40 to 50% of boys residing in farms in USA have sexual relationship with ewes, sows, and bitches, and 17% of them achieve orgasm during the relationship through vaginal coitus in the most common form. Other forms include oral genital contact. Anal intercourse, masturbation by friction against the animal body, fellation of male animal by the human partner, masturbation of male animals —a dog, goat, ass, monkey—provides a considerable sexual excitement to the boy or the girl. Kurtachi men and women occasionally have sexual relation with dogs, but as a last resort in the absence of a more appropriate sex partner. Some Trukese women put cocoanut meat in their vagina and then entice a dog to lick it out. This practice is a ground for divorce if the husband detects his wife in the act. Young Riffian boys sodomize she-asses in the hope of developing themselves sexually and making their penis grow. Arab shepherds unite with she-goats in absence of better mates. Arab men and women, suffering from venereal diseases have sexual connection with she-goats, she-asses, goats and asses, believing they will be cured thereby. Hopi men sometimes unite with burros, dogs, horses, sheep and even chicken. Kusian men use cattle as sexual objects, and among the Masai, it is customary to have sex relationship with she-asses. *Kong* in Me-Kong=Mā-Gaṅgā.

The Kalkha woman satisfies her ungratified sexual urge through stimulation of her clitoris by means of vulvar friction or stroking it with her fingers, insertion of an artificial phallus into the anterior wall of her vagina, the stimulation of her urethral meatus by rhythmic pressings of her thighs, pressing her thighs together and tensing her inner muscles and making the heel of her foot press against her genitalia. There is a belief among them that by habitual friction of her clitoris or vulvar lips may result in their increased nerve supply and may develop a heightened clitoral or vulvar sensibility to react more intensively to genital gratification during sexual unions. They also ride on horses and mules without saddles to give friction to their labia and clitoris as their more advanced sisters ride sewing machines and bicyles for the same purpose of sexual enjoyment. *Ānanda, nanda*=*Lith* nauda=*Goth* niutan, to enjoy.

The external sexual parts of the female gorilla resemble those of a woman in having recognizable labia majora and minora and a fairly prominent clitoris. In the adult chimpanzee, the labia majora are redimentary, although at one stage of fetal development these structures are present in much the same form as they assume in human females. In species whose males possess a penial bone, the female has often a clitoridean bone. The greater labia, limiting the general orifice of the vulva, exists only in women, and less markedly in the female orangoutang. Circular in rodents, transversal in the unique case of the hyena, a heterolite animal, the vulva is longitudinal in all other mammiferes. Completely imperforate in the mole, the vagina is more or less closed by a membrane which the male penis tears in first encounter in women, several quadrumenes, certain small monkeys, mormoset. Because the labia majora are vestigal in adult chimpanzees, the labia minora and clitoris are constantly exposed. The inner lips of the vulva and clitoris are both large. In these anthropoid apes, the vaginal opening is directed more towards the rear than anteriorly as it is in women. Old world monkeys have no labia majora whatsoever and the labia minora and clitoris are prominent. The clitoris of New world monkeys is quite large and tends to increase in estrus.

The Negroid is most ape-like in degree of prognathism, but is one of the least hairy and least ape-like in the development of its thick everted lips. The penis of Negro Bushman points forward; and after a Bushman woman has reached her puberty her labia minora begin to grow downward and greatly elongated while her buttock becomes distended with massive deposits of fat. The Alpine is least ape-like in being pale-skinned and straight faced (orthognathism); but it has most hair. The Mongoloid differs from the ape in least of browridges, general facial and lack of hair, and is not ape-like in blood group (low O, very low Rh). Scanty hair of the Mongoloid on the face does not allow it to freeze in arctic region, so it can survive as Eskimos. Broad flattened face with low nose and fat-padded eyelids has been adaptive for extreme drycold by protecting the eyes and the mucus membrane of the nasal cavity and sinuses. In the structure of the head and face, the temporal muscle is attached forward on the skull, pushing the eye-socket forward and make it shatter, so it can adopt itself easily to the glare of the arctic snow and dazzling light of the Gobi desert. *Gharma*=*Gk* thermos=*L* formus=warm.

The proestrous bleeding of the dog occurs at the time when the graafian follicle is attaining maturity and just before the bitch goes into heat. There is considerable swelling of the vulva and the endometrium is edamatous and hyperemic. The extravasation of blood is by diapedesis from the subepithelial vessels and there is no break in the continuity of the surface membrane. The estrous bleeding of the cattle actually takes place just after the cow goes out of heat and some 18 hours after ovulation. There is no disintegration of the surface uterine epithelium and the bleeding occurs from rupture of small congested blood vessels. Rhesus monkey females pass through an estrous phase during which she is maximally receptive and stimulating to the males. The average duration of the stage is 9.2 days. For the majority of Rhesus monkeys 3 or 4 ejaculations per day seem to represent the greatest amount of copulative activity, and in 3 or 4 days of sexual diligence, most males become unresponsive to the rutting female. The rutting female cohabits with several males in succession and may engage in as many as 50 to 60 complete copulations during the estrous period. When a howler male monkey and an estrous female howler enter into mateship, either may initiate coital relations. But after a few days of sexual performance, the male becomes lethargic and the female assumes more and more aggressive role, repeatedly soliciting the male's attention and attempting to rouse him, being always ready for copulation; and the frequency of coitus is limited to the reluctant response of the male. Some male chimpanzee can achieve 2 or 3 orgasms within one hour, but it appears that not more than 3 or 4 matings per day would be likely to occur despite constant access to a copulation partner. But the estrous female will copulate repeatedly until her mate becomes satiated and exhausted. Female chimpanzees often grasp the erect or semi-erect penis of the potential sex-partner and squeeze or pull it gently. This stimulation induces the male to attempt copulation. When the male is trying to effect copulation, the female may reach backward to push the penis with nose and lips towards the vaginal opening. The receptive female monkey has her hind legs fully extended to an almost vertical position; fore-legs sharply flexed; tail erect; body inclined forward and downward from the hips; head sufficiently extended and rotated to direct her gaze upward and backward. The male grasps the female at the angle formed by the juncture of the hips and the body. With a hand on either side, and in mounting her he clasps her legs just above the knees with his feet. He leans forward and downward during copulation, smacking his lips violently. Shortly before copulation ceases, the male utters a succession of shrill cries and greatly increases the vigor of his copulatory movements. The copulation of baboons is often preceeded by manual and oral investigation of the female's vulva by the male. A male baboon meeting an estrous female whose sex skin is swollen and colored frequently manipulates the labia and clitoris with his lips and tongue, thus stimulating sexual response. This is followed immediately by copulation. The stage of turgescence begins with the first day of menstruation and reaches its peak at the time of ovulation. During this period, there is a great swelling of the perineum which increases by 4 to 8 inches in diameter and assumes a bright pink color. The enormous distension of the sex skin with bright pink color during the first part of the cycle characterizes the female baboon and enables it to be readily identified at a considerable distance in the open country. The coital position of the ape or the monkey female is to turn her back to the male and to bend sharply forward at the hips while elevating her hinder parts, thus exposing her genitalia which is posteriorly situated. The male stands behind the female either in semi-erect position or bending forward over her back, and the penis is inserted into the vagina from the rear. The mammalian female flattens or arches her back concavely, thus exposing and elevating her external genitalia, and the male mounts from the rear, resting his forefeet upon the female or clasping them about her sides and his penis thrusts forcing penetration. Before copulation, the male African lion frequently licks the estrous female vulva, and this stimulates and often effects her in such a way that she promptly attempts to force herself underneath the male in the mating position. Some male cats will regularly mate 9 to 10 times in an hour. Other cats copulate 4 or 5 times and then cease to be responsive to the estrous female who however during her estrous period remain restless, soliciting other cats for copulations. The female elephant may manipulate the male penis with her trunks and males touch the tip of the trunk to the female vulva and anus, often displaying partial erection at the same time. The female response is to extrude the vulva and push her hind quarters toward the male. Many mammals bite their partners for pre-coital stimulation. The male domestic cat grips the skin of the nape in his teeth. This behavior provokes three reactions. It produces male and female tumescence. It causes the female to lower her forequarter and assume the mating position. As the grip is tightened after the male has mounted, it assists him to making bodily adjustments, essential to achieving bodily intromission. Cats that fail to grip and hold the nape of the estrous female rarely succeed in completing the copulatory act. Male lions bite the neck of the lioness after mounting. The neck grip may be relaxed after intromission has been achieved. The stallion often nips at the withers of the receptive mare and often bites her neck while he is mounted in the position for service. The long sharp canine teeth of the mink marten or sable seize the skin of the neck of the female, resulting in violent struggle, and pass completely through her pelt and his jaws may remain locked for almost of the copulatory period. The violent behavior has a biological function. If coitus takes place without the preliminary coital struggling foreplay, conception rarely takes place. The stimuli which the female receives during the vigorous struggle are necessary for the release of ripe eggs from her ovaries. Female rice rats that are sexually receptive follow the male about, nosing and licking the scrotum and penis until he is sufficiently aroused to assume the sexual initiative. Male rats mount the female, penetrate her and dismount several times before ejaculation takes place. Each ejaculation is followed by a period of inactivity and low sexual responsiveness in the male. In the course of 15 minutes, some rats achieve intromission as many as 20-25 times and may have 3 or 4 ejaculations. If they are left with recepting females for 3 hours, as many as ten ejaculations may take place. The effect of three hours' test is sufficiently debilitating to decrease greatly responsiveness in a second test conducted 24 hours later. During her period of estrus, the female remains constantly receptive and is capable of exhausting temporarily at least a number of rats. When the cock approaches the hen, it often belabors her with violence, pecking at her head and comb; the tom cat in mounting the female cat often sinks its teeth deep into her neck; the frog throws himself upon the female and claws her so violently that she not seldom dies of it. Lacking females, the stag rubs his prong on trees to provoke ejaculation. Bitches in heat rub their vulva against trees or on the ground. The ephemera is born in the evening and copulates soon after. The female lays eggs at night; both are dead in the morning. They have not even mouth. They eat not; neither do they drink. One sees them hovering in cloud above the water among the road. By the sense of smell the male butterfly can locate the female in heat a mileway. The male rabbit despite his great reputation as a progenitor becomes impotent if its olfactory nerve is cut.

When the mare is in estrus which lasts 4-9 days, she neighs as soon as she sees a stallion. The stallion bites playfully at the mare's flank to stimulate erection of the corpus cavernosum of his vascular penis: she responds by standing still, straddling the hind limbs, arching the tail and spasmodically erecting her clitoris. If not in estrus, the mare or the cow moves away rapidly. No female animal allows copulation when not in estrus, except some female monkeys. If the stallion's penis is strongly erect, he mounts rapidly and immediately attempts intromission. The intromission of the penis into the vagina has a marked restraining effect on the mare. Even an anestrous cow or mare will stand still when the penis or the wrist of a hand has been thrust into her vagina. In sequence of 4 to 5 spasms the semen is injected through the os which is dilated into the uterus about 50 to 300 c.c. The bull possess a typical fribro-elastic penis. It is of narrow diameter and tapers to a blunt end. Due to the marked development of fibrous tissue it is rigid even in non-erect condition. The erectile tissue is small and the penis undergoes little enlargement on erection althouth it becomes more rigid. The bull stimulates himself by smelling or exploring the vulva with his muzzle or tongue and placing his chin on the tail end of the estrous cow. Bull often mounts and serves the cow immediately although a slow bull may stand a long time behind the estrous cow. Intromission is effected rapidly. There is a single copulatory thrust of the pelvis and about 5 c.c. of semen with high concentration of spermatozoa is ejected into the vagina where the penis is retained only for a few seconds. But one copulation is not sufficient for an estrous mare or cow. As long as their estrus will last (4-9 days in the mare, 3-5 days in the cat, 13-15 hours in the cow, 35-39 hours in the goat), they will repeatedly solicit copulations, tiring out many stallions and bulls. The sexual union of anthropoids barely exceed 15 seconds, the average being 10 s, the number of copulatory thrusts ranging from 12 to 19. The male elephant achieves intromission, ejaculation and withdrawal within 30 s. Male lions and house cats maintain genital insertion only for 5 to 10 s. The longest mammalion matings occur in mink and sable some of which have been observed for 8 hours from the mount of original insertion until withdrawal.

Venus Urania of Askalon in Syria was robbed by Scythians. So through the wrath of the goddess, their descendants suffered from Nousos thelia. With loss of their testicles, men become women like, Herod IC 105. It is found among the Tartars and Arabs that those who constantly ride on bare horse back without saddles gradually lose their manhood by constant friction by atrophy of the testicles. "Women will use their mouth (*mukha*=*L* mugio= *Gk* mykaomia=*MHG* mugen) as their *bhaga* (fellatio). Women will go with servants and animals".—*MBh Vana* P. 185. Asya-maithuna (fellatio) *MBh* 7.78.43. Sulabhā unable to secure a suitable husband became a Brahmacārini. *MBh*, *Sānti P.* 232. *Kavela* =*L* caelebs, single, self-centred=celibate.

Among the Bushmen the penis is half-erect and the scrotum larger. In women the breasts are pendent and especially in girls, they are widely separated (almost at the shoulders), the apron is produced by the projecting labia minora, there is little of pubic hair in either sex. The average fully erect penis measures in its total length about 12 cm of which the glans form a quarter. The average tumescent penis at its base is 9 cm and its diameter 4 cm. The most sensitive part of the masculine copulatory organ is the glans, certain regions of which contain many nerve endings that may be stimulated either by light touch or heavy pressure.

The length of erect penis of the chimpanzee ranges from 15 to 17 cm with a diameter at the base of 2 cm. Both gorillas and chimpanzees possess penile bones. In the later species, the os is located at the lower parts of the organ and measures ¾ of its length. The penial bone, formed by the ossification of corpus cavernosum, is found in many quadrumanes—chimpanzees, orange-outang, most carnivora—dogs, wolves, feline, marten otter, badgar, among rodents—beaver, seal—and cdetaceous animals; it is lacking in ruminate pachuderms, insectivora, toothless animals. The penial bone diminishes the erectile capacity of the prong in stopping the development of the hollow chamber, but it assures the rigidity of the member which causes the swelling. Santals, Dusum, Trobriander, Sirino men and women spend hours in grooming and delousing one another—extracting lice from their hair or woodtricks from their bodies and eating them; removing worms and spins from their bodies; gluing flowers or feathers into their hair or painting their face. This behaviour leads up to sexual bouts especially when conditions for sexual unions are favorable. Flea-picking in monkeys, delousing in primates and men are identical patterns of reaponse—complex expression of visual activity and manual skill.

In Bali, girls commonly make sexual advances to boys or give encouragement to shy suitors. At a ceremonial dance, Goajiro woman is permitted to

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trip a man and if succeeds he is duty bound to have intercourse with her. Lepcha women are usually shy. But every Lepcha youth has his first sexual experience with the wife of an "elder brother" or "uncle", and this occurs as a result of woman's direct invitation. Khome girl makes first advances to her boy friends. Maori women are considered more amorous than their men, and they attempt to attract attention by shyly pinching or scratching the hand of their sex partners. *Kāma, to desire=L* amare.

The peak of sexual excitability and erotic responsiveness occur just before and just after the menstrual flux when there is a high pelvic congestion and nervous tension for the reduction of which sexual union may be gratifying to many women. But the sexual union is tabooed for majority of women at this period and many men regard it unclean. Her menstrual flux, genital secretions, her urine, axillary and bodily perspirations, even her breath, have peculiar odor, objectionable to many. If the vulva is washed regularly and the lower part of the vagina is cleansed with warm water and soap, there is no reason coitus would be objectionable, especially when majority of women feel a heightened desire during this period. The squamous epithelium of the mouth undergoes changes parallel to that of vaginal mucosa under the influence of estrogen. There is a close connection between the nasal passages and the genital organs. The nasal mucosa in some women undergoes redening and edema, resulting in congestion and rhinorrhea. Pills containing chlorophyll may be used in combatting body odor. Marquesans, Trukese, Malapai enojoy sexual union at this menstrual period. But many women experience intense voluptuous sensation in sexual union in the mid-cycle when the blood estrogen concentration reaches a peak and ovulation is likely to occur.

Follicle-stimulating hormone FSH secretes into the blood stream after each menstrual period a substance to stimulate at least one of the egg-bearing follicles of the ovaries to grow into full maturity so that the full matured egg may burst about the middle of the menstrual cycle from the ovarian wall into the fallopian tube to begin its journey to the uterus. The site of the ovarian wall from which the ripened egg bursts forth is filled with corpus luteum. The corpus luteum under the stimulas of luteum hormone LH secretes progesterone which inhibits the secretion of FSH. Without FSH the immature egg follicles stop growing, and thus progesterone prevents the extra unwanted eggs from developing during the monthly cycle as during the pregnancy. Now if progestrone is injected or a pill of progesterone is taken orally, a day beginning on the fifth day after the onset of menstruation and continuing for 20 days, a flow like that of menstruation takes place. Again five days after the flow begins, 20-day treatment of progesterone injection or ingestion of the progesterone tablet may be resumed, thus inhibiting FSH and therefore ovulation. In some women some uppleasant side effects such as nausea, headache, dizziness, gastro-intestinal disturbances, cramps and irregular bleeding are observed. They will be no doubt gradually eliminated. When ovulation is desired, the progesterone treatment has simply to be discontinued. The ovum has only a very short span of life; the ovum has to be fertilized within 20 hours. The sperm does not live longer than 60 hours; and its fertilizing power is much lower. Nitrofurans inhibit the production of sperms in men as progesterone inhibits ovulations in women. Progesterone has also the function of preparing the lining of the womb, to receive and mature the fetilized ovum. When a woman misses her period and she has to believe she may be pregnant, progesterone may be used as a pregnancy test. Let her take progesterone for 3 days consequitively. If she is pregnant it will help to implant the ovum properly, without any symptom. If she is not pregnant, menstrual bleeding begins a a few days after she had taken the last dose of progesterone. In large amounts prgesterone may produce an androgenic effect, probably due to the close chemical relationship between progesterone and testosterone. The conversion of progesterone into androgenic metabolites may explain the virilizing phenomena in certain ovarian tumours. If the infant is breast-fed, the period may be delayed from 4 to 9 months. During this time there is a suppression of FSH and LH by the lactogenic hormone, thus depressing the ovary of the gonadotropic stimulus, necessary for cyclic changes and ovulation. One of the most effective progestational substances for oral administration is 6-methyl-17a-hydroxy- progesterone acetate, 5 to 7 mg daily for 10 to 14 days, commencing with the cessation of the menstrual flow.

At the time of ovulation as a result of estrogen reaction, the cervical mucus is most abundant, possesses the least viscosity and greatest elasticity, is most translucent, contains the highest water concentration and fewest cells, is most alkaline, and thus permits the maximum spermatozoa penetration and survival. The translucent glairy secretion, when spread on a glass slide and dried, crystalizes with arborization in a fernlike pattern, dependent on its containing sodium chloride. This phenomenon is possible when the cervix is under the influence of estrogen, unopposed by progesterone. It is pronounced at the ovulation period. Once the basal body temperature has been up for 48 hours, conception is not possible for the remaining menstrual cycle. That a functional relation exists between the cervix and the anterior pituitary is supported by Ferguson's reflex which consists of oxytocin discharge after mechanical irritation of the cervix. *Kloman*= *L* palmo= *Gk* pleomon, lung.

Hypersecretion of estrogen may on occasions cause frigidity. It is usually the case that the women so affected are suffering from mammary and abdominal congestion and from menorrhagia (periods which are sufficiently prolonged and profuse) or metrorrhagia (bleeding between periods) through hyperplasic endometrium, stimulated by follicular hormones, but unrestrained by progesterone in failure of ovulation. The sexual impulse is retained and even exacerbated though amorous pleasure is lacking. Cystic degeneration of the ovaries is often the cause of these disturbances which are characteristic of nymphomania (madanonmāda). As in the case of estrogen, when the concentration of progesterone reaches a high point, the pituitary gland is inhibited and stops producing luteinizing hormone. As a result the corpus luteum begins to die and in its turn stops the production of estrogen and progesterone. With these hormones absent, the rich thick lining of the uterus cannot maintain itself. It begins to degenerate and break down as a menstrual blood. Cramps in the lower abdomen just before and during the first day of menstrual flow, subsiding when the flow becomes well-established, are an indication that ovulation has occurred during the preceding cycle.

Most women ovulate about 14th day of the menstrual cycle. But there are cases on record in which ovulation occured during the menstrual flow or very early or very late during the cycle. The human spermatozoon is only 50-68 micron in length. The fertilized human egg is a spherical cell 75 mm in diameter and weighs about .000004 grains. It has a tiny yolk and a covering membrance like stiff gelatin. Fluids wash it along the surface of the ovary until it reaches the funnel like entrance to one of the fallopian tubes 8-13 cm canal that stretches from the ovary to the uterus. There are tiny hairlike cilia

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to remove the egg gently along on its 3-day journey to the uterus. If the egg is fertilized in the fallopian tube, progesterone, poured into the blood stream, quiets the rhythmic contractions of the uterus, the fertilized egg attaches itself and takes root in the specially prepared lining of the womb and not be discarded The cessation of menstruation in association with morning nausea, fullness and tingling of the breasts, the hupertrophy of sebaceous glands in the areola of the nipples, discoloration of the vaginal walls and softening of the cervix are suggestive of pregnancy. Considerable amount of calcium is needed for the development of the embryo. If radioactive chromium is injected into the blood stream of a pregnant woman, within 20 minutes the site of the placenta can be located. *Griddha*=*Lith* gardus=greed.

Progesterone is inactivated when taken orally. But synthetic norethynedrel acts like progesterone and can be taken orally, and has slight estrogenic effect. And this estrogenic effect is emhanced if 5 mg of norethynodrel is added to 0.075 mg of ethynil estradiol 3-3-methyl ether. Phosphorylated hesperidin inhibits the enzyme hyaluronidase which assists the sperm to liquify the gel surrounding the ovum, so enabling it to enter intor and fertilize the ovum. It is harmless when taken orally, but effective. Progesterine neutralizes the temperature depressing effect of the estrogen. A single subcutaneous 2.5 mg or intertesticular 150-200 mcg injection of cadimium chloride causes acute or irreversible destruction of the seminiferons epithelium in rats, rabbits and monkeys. *Nābha* (eloud)=*Gk* nephos=*L* nebula.

Frigidity.—All the inflammatory lesions of the vulva, the vagina, the uterine cervix, and the ovaries such as vulvitis, vulvovaginitis, metritis, parametritis, salpingitis, all types of inflammation of the ovaries or inflammation of the pouch of Douglas, even the phallus on some sensitive structure for instance on the vaginal wall in Trichomonal vaginitis are capable of causing frigidity, because of the pain to which they give origin, erotic desire is retarded at least for sometime and sexual pleasure is absent. In most women the distance from the meatus and the external opening to the clitoris is less than 4 cm. The location varies in different people. Too high a clitoris is believed to reduce the capacity of orgasm during intercourse. In such a case, there is no contact between the clitoridean glands and the dorsal surface of the penis during the rhythmic movements of that organ. During intercourse, the clitoris may be stimulated in several ways, the most common source of excitation involves rhythmic pressures exerted upon the clitoris as it is seized between the pelvic bones of man and woman and the displacement induced in it by rubbing against the upper surface of the virile organ. It is manifest therefore that the amount and intensity of the stimulation that occur depend in part upon the position assumed during the sexual congress. The pubic bones=symphysis is located directly above the base of the penis in men and beneath the fatty mound of tissue that is above the vulva in woman. In most women, the clitoris is situated slightly below or to the rear of the symphysis. But during the act of intercourse, there is high probability that the clitoris is subjected to rhythmic pressures as the fatty cushion above is alternately compressed and released. And if man moves backward and forward while executing copulatory thrusts, the upper surface of the penis is likely to rub against the clitoris, displacing it in opposite directions. As the woman lies beneath the man, by appropriate movements on her part she can increase the amount of friction upon her clitoris. Clitoral stimulation is possible when the woman lies over her partner or kneels over his body. If the woman leaning forward and moving back and forth causes the clitoris to rub heavily against the underside of the penis, the penis is forced flat against the male partner's abdomen and thus offers some resistance to the feminine sexual parts. In genital infantalism, the feminine genital apparatus is insufficiently developed. This entails a disproportion between the male and female organs, thus sexual congress becomes painful (amiva=Z amayava= *GK* amin: dyspareunia=*paripluta*). In case where vulval orifice and the vagina are too large and too easily distensible, either as a result of wounds and tears of the perineum, or because of uterine prolapse (dropped womb), relation as a rule is painless, unless sometime scar is present, but voluptuous sensations are lacking in intensity. In normal uterus, the corpus is twice the length of the cervix. In hypoplastic types, if the corpus is slightly longer than the cervix, gestation may be possible. If the corpus and the cervix are of equal length, gestation is questionble. If the cervix is longer than the corpus, gestation is not possible. The infantile cervix as of an undeveloped uterus responds poorly to any treatment. A marked retroversion of the uterus may cause kinking of the fallopian tubes and pelvic congestion which could result in infertility.

A single ram ejaculates 7.2 ml only but is distinguished by the high sperm density 2.5 million per ml semen; when subjected to high speed contrifugalization, the ram semen separates with 2-3 of seminal plasma and 1-3 of firmly packed sperms. Boar semen ejaculate may reach a volume 500 ml due to excessive seminal plasma, secreted by accessory organs, sperm density not exceeding 100,000 cell ml. In man the average volume of a single ejaculate is about 3 ml, but the sperm density is less than 100,000 cells ml so that only a small portion of the ejaculate, much less than 10% is represented by the sperm and the rest seminal plasma. *Anila*, wind=*Gk* anemas=*L* animus.

Sperm migration is facilitated by female orgasm (*drāvaṇa*) which is usually accompanied by gasps and sudden violent inspirations. Cervical and uterine muscles under sexual stimulation exert a powerful sucking effect. During sexual arousal and coitus with libido, the cervical mucus projects from the external os. After an orgasm, the mucus retracts and disappears into the cervical canal, carrying with it a great many sperms mixed with the mucus. This does not belie the fact that sperms may also reach the cervical canal by their own motivity. The mechanism which involves sperm transport in cervical mucus insures a more rapid ascent of sperms and retention of their energy for the final mission of quick fertilization of the ovum in the Fallopian tube. The migration speed of spermatozoa is usually not more than 1 cm in 5 minutes. However in women with orgasm or strong libido, the spermatozoa can be found within 1 to 3 m after the coitus. Conception depends on fertile agile spermatozoa, receptive secretions in the female, ovulation, open Fallopian tubes, good corpus luteum function and adequate endometrial response for good implantation of the fertilized egg. The life span of spermatozoa is about 2 to 4 hours in the vagina, 72 h in the cervix, 24 h in the cavum uteri, probably 48 h in the tubes. If because or of inadequate secretion, the mucus remains scant, tenacious and opaque, ascent of sperms to the cervical canal is hampered and consequently infertility may result. Rarely do the spermatozoa reach the uterus when the total number of spermatozoa per ejaculate is less than 50 millions. The sperm migration through the cervix may be variously obstructed. The obstruction may be due to partial occlusion of the cervix or to alteration of the cervical glands. Narrowing of the cervical canal makes the sperm migration difficult. Cervical mucus changes obstruct the sperm migration. Only during the ovulatory phase are conditions favourable for sperm migration.

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During the corpus luteum phase the cervical mucus constitutes a barrier impermeable to spermatozoa. If the cervical glair smear is taken one or two days before the ovulation when estrogen is highest and dried, it forms crystalized fern leaf or palm leaf arborization patterns. The mucus fern phenomenon is an arborization reaction induced by the electrolytes present in the body fluid. The pattern of arborization will vary by the differences in salt concentration. Electrolyte metabolism is governed by hormonal action. The female gonadal hormone influences water and electrolyte balance directly or indirectly. Therefore mucus smears mirror gonadal activity. The cervical glands excrete electrolytes during pregnancy. But the amount is insufficient to induce fern reaction. This is due to the high production of progesterone, and allied compounds which cause salt retention. During pregnancy, therefore, the ferm test of the cervical mucus remains negative. In contrast, the saliva of women in third to ninth month of pregenancy gives a positive fern leaf reaction. The cervical but not nasal mucus reacts to estrogenic hormone. The cyclic changes occuring in the nasal mucus are not as marked as in the cervical mucus. Despite the relative narrow range of electrolyte variation in the nasal smear makes a useful guide to hormonal activity at all phases of the reproductive period. The nasal mucosa has a complex function to perform. Among other functions, it purifies, humudifies and warms the inspired air. Nasal cilia work best in a medium of 0.91 sodium chloride solution. The presence of electrolytes is decisive for the arborization phenomenon. A distinct proportion must exist between protein and electrolyte, the latter needing the former. If rabbit spermatozoa are treated electrically, some sperms migrate towards the amode and some towards the cathode. Female rabbits inseminated with the anode sperms produce mostly female offspering, the cathode migrating produce mainly males. *Hridaya*=*Z* zeroday=*L* cor, cordis=*Gh* kardia=*Lith* sirḍlis.

In female orgasm, vaginal muscles contract, there is throbbing of the pelvic floor, quick breathing and exquisite tingling sensation for a few seconds. Menstruation usually lasts 3 or 4 days, but may be longer or shorter. The amount of blood lost (as it carried at the endometrium) may be as little as a tea spoonful, but the average is 50 to 80 cc. With some women this process is a mere one of life's minor annoyances. Others suffer from abnormal pain, preceding or during the early stages of the flow. Ovaries are almound-shaped 3-cm × 2 cm × 1½ cm size. Clitoris is a bean-shaped analogue of the female of the male penis, located at the apex of labia majora; it is about 2 cm in length, formed of two corpora cavernos capped by the glans, sometimes covered by the prepuce. Occasionally the clitoris is pierced for the passage of the urethra (certain apes and moles); a slight trace of this meatus is seen at the head of the woman's clitoris. The vagina is an elastic tube whose walls ordinarily practically touch. It is smllest in diameter at its opening and between 7 to 10 cm long. Few girls who have not had previous sexual unions have a large enough vagina to copulate without discomfort, though her libido and self-confidence may allow the vaginal sphincter muscles to relax. A thin crescentic or annular fold, known as hymen (*syūman*) covers the vaginal opening. Intromission of the penis is not possible without tearing or stretching it and dilating the vagina and causing certain amount of discomfort. During sexual intercourse the vagina stretches into the abdominal cavity (*udara*=*Gk* oderoz=*Lith* vederas=*L* uterus) until it is 1 2 to 15 cm long or more. Although the size of the genitals (*Skt* rati=*Gk* eurotas) verges from woman to woman as it does from man to man, in the virgin the orifice of the vagina is 2 cm in diameter. In the married woman who has had a month's sexual unions, it has stretched to 3 cm in diameter. Stretching, nicking or introcision of the hymen and dilation of the vagina before marriage may be useful in preventing discomforts. Signs of previous pregnancies are uncertain, even after careful examination. Certain signs however, usually persist from previous pregnancies. They are silvery white or pinkish stripes or cracks in the tissues of the abdomen on the flanks, thighs and breasts. The pink striae are of recent origin, while the silver ones are older; the change in color is due to the formation of scar tissues. Laceration of the hynen and the perineum is usually apparent; vaginal and perineal relaxation due to unrepaired injuries sustained during delivery are characteristic. The vaginal portion of the nulliparous cervix is conical with an even round os on its tip; the parous os is invariably bilaterally cleft even when there is no laceration. *Siri*, plough=*L* arere=*Lith* ariu=*Gk* ariacin=*OHG* aren. If the mother has the infection of rubella (German measles) within the first 12 weeks of her pregnancy, the incidence of congenital heart diseases is 7.1%; cataract 5.5%, deafness 2.7%. Advancing maternal age or impregnation of decaying ovum may cause anencephaly, hydrocephalus, mongolism, harelip, cleft palate and even spine bifida. Against 46 diploid chromosomes of the normal, the mongol is found to possess 47; it arises from the fusion of autosome 21 (46 is trisemic of 21) of the normal, and one of enlarged extra aerocentric autosome chromosome which produces in the body too much of an enzyme that breaks down tryptophan, an essential compoonent involved in the functioning of the brain. In phenylketonia PKU an infant is unable to metabolize phenylalanine, one of the basic components of many proteins and is in danger of severe mental retardation. The treatment consists of giving the baby foods that have been specially processed to avoid phenynal anine. *Ayas*, bronze=*L* aes=*Goth* aiz.

Mother's sensitivity to Rh-positive blood produces in her baby the fatal blood disease—erythroblastosis. Expossure of premature babies to excessive oxygen pressure in incubation has been found to cause blindness. The deformity, called cyclopia, the main feature of which is a single eye, is probably caused by an injury about the third week of gestation. The deformity of conjoint twins may result from the injury to the cephalic (head) region of the embryo at about the same time, but probably after, the eyes are paired. The deformation, characterized by incomplete limb is probably caused by injury between fifth and eighth weeks when the limbs are forming. Ātman=*OHG* atum, breath=*Gk* atmos, vapor.

Elements are formed step by step, building up from neutrons. Neutrons being unstable break up almost immediately, yielding equal numbers of protons and electrons. This fission of neutron releases tremendous energy—the intergalactic expanding force of the universe, having a temperature as high as 1000,000,000°K Each proton promtly captures an electron, forming the hydrogen atom. The hydrogen atom, capturing another neutron, the pair forms a deuteron, the nucleus of hydrogen^2 isotope. Some deuteron captures another neutron and becomes the nuclei of tritium or hydrogen^3. The nucleus soon decays by emitting a negative electron and this is transmitted into helium^3. Protons and neutrons are merely different versions of nuclean. A free neutron may decay into proton by shedding a negative electron; and positively charged proton may become neutron by combining with an electron or by emitting a positron. When the central temperature of hydrogen with contraction gets hot of 5 million degrees in a star, the protons of the hydrogen move with enough energy to form deuterons. Deuterons in turn combine with protons to form helium^3 Two helium^3 nuclei can fuse and produce helium, ejecting the two surplus protons. Helium^3 does not interact with proton. Two helium nuclei may combine to form a nucleus of mass 8-beryllium. Beryllium^8 will be produced as fast as it breaks down. An occasional beryllium^8 nucleus may during its very brieflife time fuse with a helium^4 nucleus, resulting in a nucleus of carbon^{12} Carbon nucleus $_6C^{12}$ captures the hydrogen nucleus $_1H^1$ and changes into nitrogen nucleus$_7N^{13}$. $_7N^{13}$ emits a positron and changes into another carbon isotope $_6C^{13}$. $_6C^{13}$ captures another$_1H^1$ and becomes another nitrogen isotope $_7N^{14}$. $_7N^{14}$ captures another $_1H^1$ and becomes oxygen nucleus $_8O^{15}$. $_8O^{15}$ emits positron and becomes still another nitrogen isotope $_7N^{15}$. $_7N^{15}$ captures another $_1H^1$ and changes into the same carbon isotope $_6C^{12}$ which started the carbon cycle, plus a helium nucleus$_2H^4$. Ths is the process which requires 6.5 million years. 4 hydrogen atoms are captured; one helium atom and 2 psoitrons are liberated and the original $_6C^{12}$ carbon atom is restored. The net result of this 6-step carbon cycle is the transformation of 4 hydrogen atoms into a helium atom with loss of 1 p.c. of mass which is the liberated energy. There are 103 kinds of atoms, corresponding to 103 chemical elements.

The element-103 is Lowerencium-157. It has an atomic half life of only 8 seconds. It was formed along with other elements at the time of the birth of the universe, but in a matter of weeks had decayed and ceased to be. Lawrencium-257 has been created by bombarding a target, consisting of three-millionths of a gram of Californium (a synthetic element-98) with nuclei of boron atoms energized to about 7 million electron volts.

K=Kelvin=the absolute temperature scale which starts at absolute zero 273° below zero on the centigrade scale. The sun at the surface temperature 6000°K is emitting 5.43×10^{37} HP. Only 1 part in 2000 millions fall on the surface of the earth. A portion of it is reflection and is scattered by our atmosphere. Solar energy received at the surface of the earths is 1.42 calories per sq. cm. per minute. When converted into mechanical equivalent, the solar constant is 1.35×10^6 ergs per sq. cm. per second and 0.135 watt per square meter=4.6900000 HP per square mile. Selenium cells convert sun light into electrical energy. The electrons of the silicon solar cells are energized by sun light and the cells are wired to form a circuit. The energy charges the batteries. Deuteron and tritium are fed into the ionizer, an electric source which ionizes or charges the particles of gas or fires them into the middle of a powerful electromagnetic field. This field holds the charged particles together in a compact mass. The exhaust pump maintains a vaccuum inside the field. Repeated impulses from electro-magnets spread up the articles until they collide against each other and fuse. Light and neutrons, the unchanged by-products of fusion, pass through the magnetic barrier and strike liquified lithium. A concrete shield prevents any neutron from escaping into the 'plant area. The liquid lithium absorbing the tremendous heat of the fusion is pumped through the insulated pipes to a heat exchange system. There its heat is taken off and used to produce steam to drive turbines which drive generators to produce electricity. When neutrons strike lithium, they create valuable tritium so the lithium after leaving the heat exchanger passes through a scavenging tank where the tritium is removed. Generators supply power for the electro-magnets and heat. A lithium-6 nucleus after absorbing a neutron breaks up into a helium nucleus and a tritium nucleus. Photon is the energy radiated by one energy change in the atom. Photons of violet light are about as twice energetic as those of red-light because of greater frequency of violet (shorter wave length). Neutron is one of the heavy particles, contained in the nucleus of an atom, having the same weight as proton 1,008930. It carries no electrical charge and is electrically neutral. Neucleus is the central portion of the atom. Proton is one of the positively charged particle as making the nucleus of an atom; its mass is 1.6728×10.28 grams. Positron is one of the particles of the atom; it has a positive charge and a mass of 9.035×10-28 grams; it is a positively charged electron. Neutral atoms are those which have their full quota of electrons as many as there are protons in the nucleus; they are electrically neutral. Ionized alone are those that have lost one or more of their electrons. By absorbing energy, some electrons have been driven beyond the outermost orbit and become free electrons. Electron is a negatively charged particle conceived to be revolving about the nucleus of an atom as much as planets revolve about the sun. There are in any atom just as many electrons as there are protons in the nucleus of that atom. The electron is the smallest unit of electric charge; it is the lightest particle known; its weight is given as .000509 or 549 millionth of the weight of a hydrogen atom; protons and neutrons are merely different versions of nuclean. A full neutron may decay into proton by shedding a negative electron, and a positively charged proton may become a neutron by combining with an electron or by emitting a positron. The neucleus of an atom consists of protons and neutrons. The number of protons is fixed for each element. But the number of neutrons varies; and this variation is responsible for different isotopes in the same element. Anti-neutron is the uncharged particle of the same mass as the neutron. Anti-proton particles of the electron and positron are each equivalent to about ½ million volts energy. When positron and electron collide, they destroy each other to produce energy of one million electron volts in the form of radiation. Proton is about 2000 times heavier than electron.

Anti-protons can be created only it pairs with a proton, and they annihilate with a proton or a neutron, giving rise principally to P-mesons (pions). The anti-proton is the anti-particle (charge conjugate particle) of the proton. Tbe magnetic moment of the anti-proton must be identical to that of proton in magnitude, but of opposite sign. Moreover anti-protons can be created only in pairs with a proton or neutron, giving rise principally to P-mesons (pions). Creation and annihilation are governed by the fact that the total number of nucleons (anti-nucleons to be counted as minus) must be constant and the entire charge must be conserved. Pions may enter in the balance and they may be created and annihilated singly. For the whole process, energy, momentum and angular momentum must be conserved. In a proton-proton collision, anti-proton may be created only if the bombarding proton has an energy larger than 5-6 Bev. Anti-neutron is the anti-particle (charge conjugate particle) of the neutron. All electro-magnetic properties of a particle are inverted in the charge conjugate. Anti-neutrons can only be formed together with a nucleon and they are annihilated with the simultaneous destruction of a nucleon—electric charge, energy and momentum being conserved in the process. Anti-neutrons are occasionally formed during collisions of anti-protons and protons. Anti-xi-minus particle has the life span of only 1/10,000 millionth of a second. *Sīv*, to sew=L suere=*Lith* suti=*Russ* shite.

Neutrino is the neutral meson. Some radioactive changes take place in neutrino with a distribution of energy which is in conflict with the laws of energy: a particular example is the emission of B-rays. Though 200 billions of solar

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neutrinos bombard each square inch of the earth every second, yet a human absorbs only one neutrino in his life time. Most of the solar neutrinos come from the burning of hydrogen into helium. One-fifth of the total energy radiated by a star in its life time is in the form of neutrino. In some stars where elements like iron are formed by the fusion of iron or helium, the neutrino process is important. It shortens the time needed for the synthesis of elements from millions of years to thousands of years. When the star's temperature reaches six to seven billion degrees, the neutrino emission process causes the star to explode as a supernova. Anti-sigma-plus brings the destruction of a matter when it comes in contact with it, by giving off a trememdous amount of heat.

One *light year* means the distance of 6 billion miles. There are galaxies of 2 billion light years. The distance of the sun from the earth is 93 million miles, a distance to circumnagigate the earth 3600 times over which light takes 8 minutes to travel. Our Earth is tied to the sun by a gravitational pull as strong as 10 million steel cables, 1 km thick. From the Moon, the Earth would appear a blue globe, hanging in the black sky; continents would be faintly visible if the day on the Earth was cloudless. The Earth appears blue, because our atmosphere absorbs blue light rays more than others. From the Moon the sky appears black, for in the Moon there is no atmosphere to scatter the sunlight and to modify its appearance. The orbital and axial periods of the Moon are equal, hence a terrestrial observer may see only half of the Moon's surface.

Photon is an indivisible quantity of electromagnetic energy. The anti-proton is the antiparticle (charge conjugate particle) of the proton. The magnetic moment of the anti-proton must be identical to that of proton in magnitude but of opposite sign. Moreover antiprotons can be created only in pairs with a a proton or a neutron, giving rise principally to P-mesons (pions). Creation and annihilation are governed by the fact that the total number of nucleons (antinucleons to be counted as minus) must be constant and the entire charge must be conserved. Pions may enter in the balance and they may be created and annihilated singly. For the whole process, energy, momentum and angular momentum must be conserved. In a proton-proton collision anti-proton may be created only if the bombarding proton has an energy larger than 5.6 Bev. Anti-neutron is the antiparticle (charge conjugate particle) of the neutron. All electromagnetic properties of a particle are inverted in the charge conjugate. Anti-neutrons can only he formed together with a nucleon and they are annihilated with the simultaneous destruction of a nucleon—electric charge, energy and momentum being conserved in the process. Antineutrons are occasionally formed during collisions of antiprotons and protons.

Aurora displays splendors in the circumpolar sky. Above the sun-spot, observed about 11 years intervals, there are explosive prominences or flares not only emitting brilliant light and ultra-violet radiation, but also ejecting cores of hydrogen positive protons at speeds of approaching of 2500 km per second and negative electrons which emit the characteristic carnation red light when the separated particles reunite. These particles sweep into the earth's magnetic field. There is an immediate reaction between the earth's magnetic field and the conducting face of the advancing stream. The protons are guided against the direction of rotation of the earth and the electrons with the rotation, when the earth is completely trapped by the hydrogen particles, there is a ring current of many hundreds of thousands of ampires flowing clockwise high above the earth around the equator whose attendant magnetic field is opposed to that of the earth. As the gigantic ring current encircles the earth, high above the equator, it develops into a world wide magnetic storm particles which leave the ring under electrical repulsion of the same charge, can flow only along the lines of the force of the earth's magnetic field. Channelled poleward along the lines of force, they gain speed all the while hurtling downwards towards the earth in the northern (aurora borealis) and southern (aurora australis) auroral zones. Under the bombardment of swift-moving protons and electrons, oxygen of the upper air at a high level is excited to emit crimson red light. Normal atoms are in the lowest energy state; they can not emit light nor heat; but when they absorb energy and one or more electrons are transferred to larger orbits, they become excited atoms, capable of giving off light and characteristic lines in the spectrum. Protons produce the red and green light seen at the beginning of the aurora. At the lower level with the excitement of nitrogen atoms, it emits violet and blue light, seen at the end of the aurora. The cause of radio fade-outs in short wave radio transmissions which occur simultaneously with magnetic storms which always coinside with solar flares is due to the enhanced ionization of the lowest reaches of the ionosphere 12 to 15 km below the normal boundary of the D-layer of ionosphere as a result of irradiation of intense ultra-violet light from the solar flare. Night shortwave transmissions are not affected. Radio fade-outs are only observed in the sun-lit hemisphere.

The Origin of Milk: The flow of blood through the mammary gland of a goat amounts to 150 to 250 litres for each litre of milk secreted. For a cow about 400 litres of blood flow through the mammary gland for each litre of milk produced. Synthesis of lactose, a sugar found in milk from glucose, a sugar found in blood, can easily be traced in the goat. If glucose labeled with radioactive carbon is injected into the jugular vein of the goat, glucose is then isolated from a sample of blood; lactose from a sample of milk. Samples of each sugar are burnt and the carbon dioxide given off is converted into barium carbonate. The radio-activity of barium carbonate from sugar is equal, showing that lactose is made entirely from glucose in blood. Blood fats of goats labeled with tritium—the radioactive isotope of hydrogen—these fats go directly into the formation of milk. Milk fats are synthesized from acetic acid taken from the blood. If acetic acid labeled with radio-carbon is injected into the blood stream of a goat, milk's short chain fatty acids turn out to have a high level of radioactivity while the long chain fatty acids in the milk possess no radio-activity. As for glycerol, the compound that combines with fatty acids to make a fat by tracer experiments, it has been proved that the source of glyceroids used by the mammary gland to synthesize fat is glucose taken from the blood. Milk proteins—casein and betalactoglobulin—are synthesized from 20 different kinds of amino acids in the blood. The fat content of the milk of the cow can be increased by feeding it with food containing acetic acid or sodium acetate. Milk agitated by ultrasonics and then promptly frozen can be kept frozen for at least a year and then thaw out into its natural state. Forage grass (ghāsa=*L* gramen) contains 23 times more vitamin A than carrots, 22 times more vitamin B-2 than green vegetables, 9 times more vitamin B-1 than rice polishings and 14 times more vitamin C than citrons. A pellet of stilbestrol can replace pregnancy as a promoter of lactation in cows.

The normal human's 46 Chromosomes are classified as 22 pairs of autosomes (non-sex chromosomes), one of each pair being derived from the father and one from the mother and two gonosomes (sex- chromosomes). In a

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woman the gonosomes are both X s, one each from the father and mother; in a man they are an *X* from mother and from father. Among the autosomes the two members of each pair behave alike. But the woman's two X s behave quiet differently [except in her egg cells]. One acts like an autosome and so does a man's single *X*. But a women's second *X* curls up on itself and becomes condensed so that it appears as a heavy dark spot on the microscope.

The fertilized human egg is a spherical cell 1/75cm in diameter and weighs about .000004 grains. At the end of a month, the single tiny cell from which it started has multiplied ½ cm already with a circulatory system of its own which can hardly be distinguished from the young embryo of any other animal. It has already increased 8000 times in weight. In two months it is about 2 cm long and looks like little monkey. In three months, it is 7 cm long, has arms, legs, fingers, toes. In 6 months, it is a 15 cm and able to move now and then in the womb. Mother's weight will increase a total of 10to 12 kg for 3 kg baby. Some of this will be in fat, but beside the baby there is the weight of placenta (*parisrava*), amniotic fluid in which the baby floats. Coitus following fertilization should be avoided when second and third menstruation should have ordinarily occurred, as they are the times when the danger of miscarriage is greatest. In order to avoid any possible infection or irritation, intercourse should be completely avoided during the last six weeks of pregnancy, and for a month after the baby is born in order to heal up the wounds, and to contract the dilated generative organs. If the father is Rh+ and the mother Rh—, the baby will be Rh+. Any leakage of the baby's blood into the mother's circulatory system will result in antibodies being formed, and the clash of the antigonistic blood may bring death of the embryo or any subsequent fetus will be affected. Mothers who are Rh— lose about one baby in 56. It is estimated that each person possesses something like 44000 pairs of heredity carriers or genes; of these numbers only about one mutation per individual can be expected on the average. *Plihan*=*L splen*=*Gk* splen=spleen.

Our brain contains 2 main types of cells—neurons with elaborate systems of filaments extending contacts with the filaments of other neurons—and much smaller glial cells, sticking to the neurons. Neurons transmit nerve impulses by high speed electro-chemical reaction. When neurons are stimulated, they swell in volume and their filaments extend in all directions by the increase of enzymic proteins while the glial cells correspondingly shrink. Each neuron contains millions of molecules of ribonucleic acid RNA. Memory is the impression of RNA in millions of neurons. Human brain contains about 10 billion neurons. Small doses of tricyano-amino-propine (triap) causes enzyme changes in the neural RNA, followed by the increase of suggestibility. *Svarga,* heaven=Svarog, the Slav skygod whose sons are Dazhbog, the sun, and Ogon, fire. Kang (snow) chhen (huge) deog (treasury) gna (five).

The spring and the thundery weather is sexually stimulating (*Anaṅga Raṅga*). Stormy weather, especially in a temperate climate, when the atmosphere is charged with electricity, has an incontestable effect upon the sexual impulses which are stronger on the occasions with flashes of lightning and rollings of thunder. Infra red rays of the spring and the early summer sun light in a temperate region provoke vaso-dilation and congestion of the skin of the pelvic and genital regions. Light rays act through the eyes and they are conveyed to the pituitary gland which is lodged in the skull in very close proximity of the optic nerve which being stimulated reacts upon the ovaries through Antuitrin-S. But it gradually diminishes in warm damp and therefore relax-ing regions, thus lowering the blood pressure. Vidyāpati also emphasizes the aphrodisaic qualities of the vernal zephyrs and thundering rains.

Miscarriages are most frequent within the first 4 months of pregnancy, owing to the slight attachment of the ovum to the uterine wall. Within the first few weeks the ovum being minute is cast off without being suspected. Causes referable to the mother's poison circulating in her blood may be due to small pox, plague, influenza, malaria, streptococcal infection, and especially syphilis. Syphilis is one of the most frequent causes of miscarriage and is likely to act in successive pregnancies; also lead and mercury. Diseases affecting the circulation of the blood such as anemia, chronic Bright's disease, and of heart and lungs; through the nervous system such as sudden shock, fear, joy, sorrow; irritation of the bladder, rectum, or mamma. Local conditions such as imflammations, fibroid tumors of the uterus, old peritoneal addhesions or violent sexual orgies by inducing heavy pressures and local hyperemia. Pituitary extract—oxytocin—causes powerful contraction of the uterus; quinine does the same to a lesser extent. Spontaneous abortion takes place when from the uterine cervix bacteria of the genus Listeria secretes continuously. Listeria is also found in meningitis and pneumonia. Genital listeriasis cause little discomforts; only a few complain of vaginal discharge and itches when listeria are found mixed with other organisms. Seeds of unripe fruit of Carica papya (*pepe* named as it was introduced from Papua), the unripe fruit of the pineapple, Memordica Charantia (*karalā*), Moringa pterygosperma (shajinā), Caryophyllus aromaticus (*lavanga*), Myristica fragrans (*jaiphal*), Crocus sativus (saffron), Trigonella faemun-greecum (*methi*), the seeds of Daucus Carota (gājor kā bij), Cucumus trigonas, the decoction of merigold flowers, riding on horse back, jolting caused in driving on rough roads, strenuous abdominal exercises, applications of the leeches on the pudenda, perineum and the inner surface of the thighs are used to bring out abortions. The Australian aboriginal priests have *mica* operation (fistula into the dorsal penile urethra) as a birth control measure. In Central Africa, rags or chopped grasses are inserted into the vagina to avoid conception. When the uterus is undeveloped, the cervix is frequently conical and the external os is pin-pointed. When the uterus is infantile, usually combined with retroversioflexion, the cervix may be represented as a simple dimple with an opening in the center, as a result of estrogenic or nutritional deficiency, thus preventing conception. In abortion uterine muscles do not contract but remain passive under the influence of corpus luteum. The blood vessels which would ordinarily close during uterine contraction remain open, and there may be profuse bleedings. If in addition, a portion of the placenta remain in the uterus, bleeding and even infection may follow. Bataks insert a ball containing tannic acid against the mouth of the cervix uteri. Ganeśa=*Rom* Janus=Da-Gon, *Bab* god of agriculture.

Like the mare the penis is forcibly held by the vulvar lips (for retaining its turgescence). It has to be learnt by practice. It is called vāḍavaka. It is prevalent in Andhra.—Vaḍaveva niṣṭhuram abagṛiṇīyāditi Vaḍavaka māvyāsikam; tadandhrisu prāyena, *Kāma Sūtram* 6.6.19-20." When the spincter vaginae—bulbocavernosus—constrictor cunni compresses at the root of the penis, the vaginal orifice is not only narrowed by its rhythmic contraction, the erection of the inserted penis is increased by exerting the diaphragmatic action of these orbicular muscles, the penis retains its size and position.

The peak of sexual excitability and erotic responsiveness occur in an adolescent woman in her postovulatory period with deficient Iuteotropic

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hormone LTH secretion of progesterone or during the menses of a normal woman, particularly if she is of anovulatory type with hyperestrenism.

In the absence of Thiamin B in the diet, there is an excessive production of adrenal estrogenic secretion. Thiamin deficiency in the diet decreases the libido and produces gynecomastia in the male; the same deficiency increases the female sex urge, because in B deficiency the liver continues to inactivate androgens, but no estrogens. A rise in the estrogen level in the male decreases his libidinous drives and increases his mammary growth while they are intensified in the female. Some forms of hepatic lesion cause emotional disturbance. *E* guarantees the full utilization of *A*. A rich diet reduces spermatogenesis in men and fertility in women, probably by oxidizing the available *E* in the body. Arginine, found in fish-roe, promotes fertility. Thiamin is found in rice coating, wheat germ and ripe mangoes and bananas.

The soft tissues of the inferior and middle turbines and part of the nasal septum possess erectile properties like those of the penis. The tissues in women are more turgid and the nasal symptoms are more pronounced during menses; sneezing and nasal discharges are sometimes associated with copulation. There is continuous nervous pathway from the vidian ganglion to the sheath of the anterior pituitary. The relationship of the nose to the genital organs may be that of nerve stimulation to the anterior pituitary and hormonal stimulation from the pituitary to the gonads. Some forms of liver diseases cause emotional diturbance. Arginnine, found in fish roes, promotes fertility. Kangchhen zodnag= Kāñcana-śriṅga.

It is estimated that each person possesses something like 44000 pairs of heredity carriers or genes; of these numbers only about one mutation per individual can be expected on the average. A change in genetic DNA deoxyribonucleic acid plays a key role in both heridity and of vital functioing of the cell. Jāts= Zanthi of Strabo= Indo-Scythian Jatii of Ptolemy.

During the first part of pregnancy estrogen and progesterone cause the pituitary mammogenic lobule alveolar growth and lactogenic hormones.

Male mammal cary both X and Y sperm, 50% of which are X. Female mammal carry only X eggs. Female bird carry both X and Y eggs almost in equal proportions; the male bird only X sperm

In man the penis consists of three, in all domesticated animals of two, cylindrical bodies—corpora cavernosaurithrae. Interspaces of the cavernosa become dilated through the activities of testosterone and filled with blood. The pressure of the blood and its inability to escape from the cavernous spaces of the penis causes its turgidity and erection during sexual excitement. The end of the penis capping the corpora cavernosa is the glans penis. In man it is mushroom-shaped. In the opossum it is forked, including the terminal 2 cm of the penis. In the boar it is corcscrew-shaped and in the bull there is less pronounced twist along the longitudinal axis. In the goat and ram, a thin projection extends 3-4 cm beyond the top of the glans penis.

Erection is brought about by the nervi erigentes which relax the muscles of the arterioles of the penis and the spongy tissue of the corpora cavernosa and spongeosa; at the same time the dorsal vein of the penis is compressed. Stimulation of the hypogastric (sympathetic) nerves at operation produces ejaculation of semen in man. Bilateral lumbar sympathectomy below L_2 or section of the presacral nerve abolishes ejaculation, although penile erection and sensation remain normal. A lesion of the sacral nerves below S_1 which serves the sacral parasympathetic outflow abolishes erection and produce relative anesthesia of the penis.

The sexual excitement of an adolescent healthy woman may last from a few minutes to two to three hours, depending on the intensity and continuity of the stimulus. As the sexual tension mounts, the nipple is erected and its areole becomes engorged and swollen. A measle like rush spreads from the upper abdomen over the breasts. The clitoris becomes tumescent. The labia majora and the nymphae increase in size, two to three times, because of the venous engorgement, extend laterally to provide additional support along the lateral axis of the vagina, making the vaginal outlet more available to the male organ. Bartholin's glands produce a mucoid secretion. A transudate glisssening material appears on the vaginal wall. These droplets of lubricating material coalesce, forming a slippery coating. The corded neck muscles, swollen flushed face and expanded rib cage become manifest. The uterus with the cervix is pulled upward. The uterine wall is contracted to a third or half of its diameter, corresponding to the rhythmic contraction of the penis during ejaculation. The engorged outer third of the vagina shrinks back to normal size within 60 to 90 seconds. Without orgastic relief of detumescence, inflammatory changes and functional disorders of the genitals take place, provoking neurosis and neurasthenia.

Dorsal decubitus position, a man on the top of a recumbent woman, face to ace, facilitates penile intromission, deep penetration, vigorous pelvic thrusts, if the woman's thighs are stretched out and raised, but it hastens male orgasm. The lying face to face lateral posture, prevalent among the Viet-Namese and Swahelis, delays male orgasm, prevents deep penetration and is convenient during wife's pregnancy. Coitus a la vache, through rear entry, man's face prone on the womans back, common among the Eskimos of the Smith Sound and the Koniags, enhances vaginal friction though the penis may be short and the vagina relaxed, facilitates impregnation and is suitable during pregnancy, but the penis does not contact the clitoris and may slip off from the vagina. Face to face crouching or sitting posture, both parties squatting on their hams, customary among the Melanesians, facilitates excellent clitoral stimulation and deep penetration but retards impregnation. In reverse coitus, when the woman is astride a recumbent man, she can easily regulate her vaginal penetration and clitoral stimulation, but the penis may be slipping out of the vagina during her copulatory movements. Face to face standing posture, common among the Sudanese, makes intromission difficult and sustained intercourse becomes uncomfortable. *RV* 8.1,34 Śaśvatī: husband, it is now excellent for our delightful enjoyments.

The male fish never sees his mate, but discovers the eggs she has laid in water and appends the necessary sperm. The rooster has no penis but merely sprays the semen into the hen. In the ascending scale of development an erect penis occurs first in crocodile and turtle.

The lustre of the eyes depends on the movements of the eyelids. The corona of the eye is a mirror which like any other mirror reflects the light that falls on it. The higher the eye lid is raised, the larger becomes the mirror, and the mirror light is reflected. The exciting emotions like joy, pride have a tendency to raise eyelids while depressing emotions cause them to sink and probably cover the eyeball. The eyes brighten and glissen in an ever fresh supply of lachrymal fluid. After weeping this supply is temporally exhausted, hence the eyes are sticky and the lids difficult to raise, and even if they are raised, there is no lustre. The external straight muscle—musculus amatorius—was called lover's muscle, because the furtive side glance is aimed at a beloved person. Śaśvatī nārī, eternal woman.

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Indra, bestow on us the best of treasures, dexterous mind and greatest prosperity, abundand riches, lasting health of the body, charms of speech and propitious days. Indra, śreṣṭāni draviṇāni, dhehi cittim dakṣasya subhagattam asme/paṣam raynām ariṣtim tanunām svādmānam vacah sudinatvam ahnām—Gṛitsamada *Rv* 2.21.6.
Rv 6.50.4 Huta (*āhuta*, invoked, puru-hūta, much invoked) = *Teut* Hwatan = *OHG* Wiwtan, Gwodan = *As* Woden, after whom Wednesday has been named = *Ice* Odin = *ON* Guth = *Ger* Gott = God.

Eleuthia—Lalitā—*Baby* Mylitta as a goddess of fertility and child- birth is represented at Ras sharma of 1300 B.C. Her torso is nude. On each side is a rampant bearded goat to seize ripe ears of grain in her hands, symbolizing the fruitfulness of the Earth. On her head, the goddess wears a Phrygian cap with wavy bands. From hips to feet falls a much-pleated skirt with many ruffles, *NGM*, Oct 1930. Astarte—Īśā—godders of love, standing erect, reveals her nude beauty, holding lotus flowers in eachof her hands, N.G.M. Oct 1930.

RV 1.50.10 Jyotisuttarm—Northern Light; *RV* 9.113.7; Jyotirajasram—incessant beams of light—aurora borealis. *RV* 10. 64.10 Bṛihaddiva—*L* dies (long day light. At the north pole 90°, there is the continuous day light of 189 days and continuous darkness of 176 nights; at 85° north polar circle of 163d and 150 n; at 80° of 137 d and 123n) *RV* 2.27.14 Dirghātamisrā (*L* temus, darkness). At higher latitudes not only the twilight is longer but even at midnight when the sun is less than 18° below the horizon 66°33 its diffused light—a persistence of twilight—will still be able to dispel the complete darkness up to 40° 33'. Twilight ends when the sun reaches an angle below 18° below the horizon. At the time of summer solstice June 21.22 the sun never comes nearer to setting than skimming along the horizon at midnight. *RV* 1.122.2 uṣāsā-naktā (—*L* nox, *Lith* naktis—*Ger* nacht)—twilight at night. Bacterians were accustomed to throw those who were worn out with age or infirmity to dogs, bred exculsively for the purpose. A sick person was wretchedy fed and clothed in a confined enclosure until he becaume aged (zaurura); *Jarā* = *gk* geron impotent (pairisha sudro) when his head was cut off by a sturdy man and his corps was left for the vultures. Men over 70 among the Dervices were killed and eaten by their kinsfolks; old women were strangled and buried. Hun Abtelites—Ephthalites—Vetalas used to eat up their dead when half-roasted on the funeral pyre. Among the Caspians those over 70 were starved to death. In India the old over 50-60 to spare the meague food supply for their children were made to leave their home and hearth to live by begging or in forests to live on wild roots, berries or fruits. Reverence for the aged was found in Egypt, China, Sparta, among the Ossets and Avars, but not among Massa Getae, Issedones, Samoyedes and Ostiacs. Polynesians ridicule their old and sick. The Laps do not take any care of their aged parents. Tibetans (Ta Bot—Bhutas) of Konur kill their parents when they become a burden. When Teutonic Heruli was threatened with death by disease or old age an executioner stabbed him on the pyre.

Sex life in Arabia: Adam was the male spirit Aish, and Eve the female spirit Aishah. In the etherial perfume and joy of paradise, Adam saw that Eve was pretty. Guided by the divine spirit, he took her under him, practised coitus, and thus engendered the great human family. Adam found that coition was beautiful. It procures for men and women ineffable joy. It makes man an active executor of the creative and generative will of Allah. He saw also that coition was the foundation of entire creation; and its perpetuity and existence depended on it. Allah desiring his sacred name to be always praised has assured the continuation of individual and universal life through coition as a chant through voluptuous spasm, reminiscence of the supreme heavenly beatitude whereby man himself becomes a creator, creating his alikes. One day interrogated our saint prophet on marriage and coitus to which he replied: Coitus is one of the causes of the preservation of health. Those of you who ar capable of copulation should marry. Marriage conduces one to moderation, and turns one form incest and adultery. "Women are your plow fields (*herth*); plow them as it pleases you (Koran 2.223)." After repast there will be little inconvenience. Son of Oman never entered into sexual union before taking his meal. But coitus is permitted in the nights of fasting for "your wives are your garments as you areof theirs; so you can enjoy them when you desire them to taste the fruits which are reserved for you (Koran 2.5. 183)." When *Dkeur* (penis) penetrates within the vulva, it is good to pronounce sacred formula. Purify yourself after cohabitation with your wife. But if you desire to recommence copulation, make ablution after the first coitus and say thrice the formula Bismillah. After copulation, make ablution, use perfume and pray to Allah. In confirmation of the word of the prophet: "In the world I love most women and perfumes; perfumes animate the spirit which is the regulator of the forces of man; nothing, nothing is more salutary like perfumes after coitus. Coitus thus performed becomes a sacred act." "Make copulation a divine work, an act of creation, a pleasant duty in whch you participate with your wife your joys and felicity (*El Ketab* 3.1)."

Impotence among the uncircumcized Christians and idolators may be caused by excessive constriction of the glans penis through the adhesive long prepuce. In that case simple surgical circumcision will liberate the gland from the adhesions and make it fit for fecundation. Physiological impotence may originate from prolonged continence, masturbation or fellatio. Impotence from these causes may be fought by shaving frequently round the penis, testicles and the perineum in conformity of the practice observed by the prophet. It is also good to eat eggs, for the egg contains ingredients which increase semen and animalicules (spermatozoa) of the semen. The application of *henna* (Lawsania inermis) of the finger tips, crown of the head, feet induces one to coition, and thus combats impotence; "use henna", said Anas; it is rejuvenating, beautifying and conducive to copulation. Abu Raffi mentions: One day I was with our saint prophet; he put his hand on my head and said; Well, make use of the great henna; henna strenthens the skin and excites one to coitus. By my per sonal experience if one messages the penis in the mornings and evenings with distilled henna water, very few impotents are not cured. 8 to 15 days are quiet sufficient for radical cure. According to celebrated traditionist Abu Harelrah, the prophet complained to angel Gabriel his reduced copulatory power. "Why," replied the angel, "don't you eat herisah (made of mutton and wheat flour); in *herisah* there is the strength of 29 men *Khamis* and *Terfas* (truffle) also cure impotence and are conductive to coitus. With jets of cold water wash your penis and perineum in the mornings and evenings and half an hour before coitus. Eat eggs, sea fish, truffles, lentils, testicles of bulls, lambs, chicken, carrots, almonds, dates and asparagas. And reduce your belly as recommended by Khalif Omar. Big belly ruins the body, engenders diseases weakens the power of coition and brings lethargy in any life's activities.—*El Ketab* 1-7. *Ar.* Allat, *N. Semitic* Anat for the Venus = Lalitā.

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